GIANT SQUID FOUND, BIGFOOT STILL MISSING • THE 'PAUL IS DEAD' MYTH • PLANET X AND SCIENCE

Skeptical Inquirer

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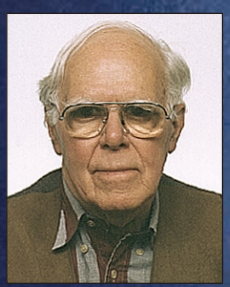
THE MEMORY WARS
Part One



Martin Gardner

Ogopogo the Chameleon

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Why Did They Bury Darwin in Westminster Abbey?

Paranormal Beliefs
An Analysis of College Students

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

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of Claims of the Paranormal

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Editor's Note

Memory Wars and Monster Stories

Cases involving dubious claims of recovered memories of supposed past abuses brought out in therapy—often under hypnosis or with other questionable methods—may have diminished from their high point in the late 1980s and early 1990s. But the damage to countless people has been done.

In "The Memory Wars" in this issue, Martin Gardner reexamines what he calls "the greatest mental health scandal in North America." In this first of a three-part series, Gardner reviews what happened and brings the sad matter up to date. The cases even went beyond false accusations of personal abuse, although those kinds of allegations were the most terrible in their human toll. Some quack therapists took their patients back to memories in the womb—in one case, even to being stuck in a fallopian tube. Several university scholars extended repressed memory therapy into the realm of UFOs and alien visitations, dragging up patients' supposed memories of alien abductions and presenting them as literally true.

Some return to reason is now evident, a result of prominent reversals by appellate courts; the better education of judges, jurors, attorneys, and the media about the unreliability of recovered memories and the malleability of all memories; the increasing number of "recanters"; and a number of successful malpractice lawsuits against therapists who pressed the wild claims.

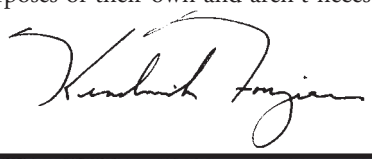
Martin Gardner is beloved worldwide for his books and articles and his decades of *Scientific American* columns on recreational mathematics (which the Mathematical Association of America has now put on CD). An SI Editorial Board member, his column "Notes of a Fringe-Watcher" appeared in every issue of the SKEPTICAL INQUIRER from Summer 1983 through January/February 2002, when he retired it. His 2004 book *Are Universes Thicker Than Blackberries?* reprints the last of those columns.

We are delighted to have Martin back in our pages. "I'm doing fine for one of 90," he wrote me when submitting "The Memory Wars." (He's since turned 91.) He outlined his various book update projects and ended, "I'm keeping busy."

* * *

Last February Joe Nickell and Benjamin Radford, together with National Geographic Television, traveled to Lake Okanagan in British Columbia, Canada, to investigate the stories and claims about Ogopogo, the lake's famous "monster." Joe of course is CSICOP's Senior Research Fellow and SI's "Investigative Files" columnist. Ben is SI's managing editor and "Skeptical Inquiree" columnist, and is fast developing a reputation of his own as a quality investigator of fringe claims. Together they are writing a book on *Lake Monster Mysteries*, to be published this year by the University Press of Kentucky.

In this issue, Joe devotes his column to their investigations at the lake and proposes a solution to the mystery of what people have been seeing all this time. Ben, in his article "Ogopogo the Chameleon," takes a broad approach and examines the alleged beast's incarnations as variously an Indian legend, an elusive biological beast, and a lovable local mascot. He, valuably I think, takes a folklorist's viewpoint that native stories and legends have social purposes of their own and aren't necessarily meant to reflect physical reality.



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Kennewick Man Made Available for Study by Court Order

In July of 1996, during a performance of the Water Follies on the Columbia River near Kennewick, Washington, two spectators literally stumbled upon a millennia-dead body that has come to be known as Kennewick Man. When the men found a skull in about a foot and a half of water near the river's edge, they turned it over to the police, expecting that their discovery would perhaps spur a criminal investigation. But what resulted instead has been an anthropological investigation—as well as a prolonged struggle in the courts.

When the remains were completely unearthed, and it had been determined that they weren't of recent demise, the Army Corps of Engineers decided that they should be turned over to the Confederated Tribes of the Umatilla Indian Reservation. A law known as NAGPRA (the Native American Graves Protection and Repatriation Act [see "NAGPRA, Science, and the Demon-haunted World' by Geoffrey A. Clark, SI, May/June 1999]) seemed to dictate such an action, since the members of that group were the most likely cultural descendants of the long-dead man. But a group of anthropologists took legal action to prevent the bones from being turned over to the Indians.

The scientists' interest was understandable: the bones were among a small group of the oldest ever found in North America; the information they could reveal was, from a scientific perspective, priceless. Initial testing of a small sample of the bone tissue had shown the remains to be between 9,200 and 9,500 years old (although further tests have reduced the lower end of that range to 7,000 years). From that point, it was left to the courts to determine which claim was stronger under the law. The case presented a unique test of NAGPRA, which had been in the law books only since 1990.

A tortuous series of litigious maneuvers followed, a legal tug-of-war that involved not only the scientists' court case but also an attempt to amend NAGPRA to allow the study of remains like those of Kennewick Man. A succession of judges ruled, first for one side and then the other. That battle lasted for almost a decade.

Finally, in June 2005, the Ninth U.S. Circuit Court of Appeals upheld a ruling that had been handed down by U.S. District Court Judge John Jelderks that allows scientists to study Kennewick Man—about how he lived, how he died, and what life was like in North America possibly more than nine thousand years ago. Full-scale taphonomic studies will begin to see what has affected the bones since the individual's death, perhaps answering such questions as whether his burial was by intent or by accident.

Curiously, one of the first things noted about the skull was its structural characteristics, markedly different from those of American Indian tribes that reside or are known to have resided in that region. That may be a sign of hitherto unknown human diversity in North America.

There is a challenge to the appeals-court decision, but it isn't expected to stand. However, according to a report from the Associated Press, "Legislation remains under consideration that would allow federally recognized tribes to claim ancient remains even if they cannot prove a link to a current tribe," so there may yet be more to come in the case of Kennewick Man.

—David Park Musella

Florida Study Dismissed 'Celestial Drops' to Treat Citrus Blight

Florida's citrus crop contributes billions of dollars to the state's economy, so when that industry is threatened, anything that might help is considered. Back in 2001, when citrus canker was blighting the crop and threatening to reduce that vital source of revenue, an interesting—if not quite scientific—alternative was considered.

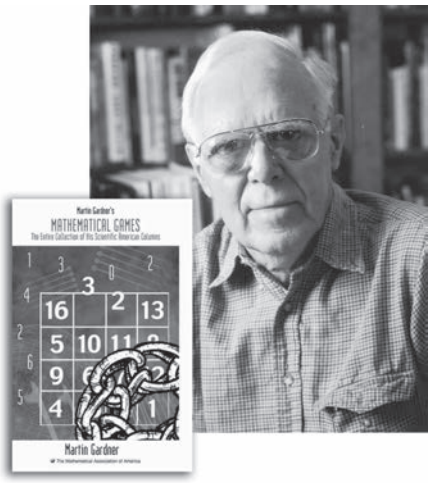
Katherine Harris, then Florida's Secretary of State—and now a member of the U.S. House of Representatives—ordered a study in which, according to an article by Jim Stratton in the *Orlando Sentinel*, "Researchers worked with a rabbi and a cardiologist to test 'Celestial Drops,' promoted as a canker inhibitor because of its 'improved fractal design,' 'infinite levels of order,' and 'high energy and low entropy.'"

The study determined that the product tested was, basically, water that had apparently been blessed according to the principles of Kabbalic mysticism, "chang[ing] its molecular structure and imbu[ing] it with supernatural healing powers."

Citrus canker is a bacterial disease that affects all citrus trees. Caused by a bacterium, *Xanthomonas axonopodis*, citrus canker can be spread from tree to tree by windborne rain, the movements of birds and other animals, and human activity, such as improper disposal of infected trees and fruit. The bacterium causes brown, crusted lesions with yellow haloes to appear on the surfaces of leaves and the skin of fruit, reducing the leaves' photosynthetic capacity and stunting the growth and preventing the maturation of the fruit.

The only accepted means of fighting the blight is the downing of affected trees and proper disposal of their remains. But the Florida state government is frequently bombarded with new supposed cures and preventatives; most of them are not tested by the state with government funds. But in this one case, at least, it appears that an exception was made: six months were spent establishing testing protocols and, finally, testing Celestial Drops. In a letter to the state government, Wayne Dixon, the head of Florida's Bureau of Entomology, Nematology, and Plant Pathology, reported that the "product is a hoax and not based on any credible known science." He added, "I wish to maintain our standing in the scientific community and not allow [the developers of Celestial Drops] to use our hard-earned credibility" to promote their product.

—David Park Musella



New Collection of Martin Gardner's Mathematical Recreations

In honor of Martin Gardner, a CSICOP Fellow and "one of the most beloved personalities in mathematics," the Mathematical Association of America has released a compilation CD of Gardner's mathematical columns that appeared in *Scientific American* between 1956 and 1981.

Martin Gardner's Mathematical Games makes newly available the contents of fifteen previously released books of two and a half decades worth of Gardner's columns. Those texts both informed readers about new developments in the fields of mathematics, such as fractals and combinatorics, and introduced many people to the idea that through puzzles, math can be a challenging form of recreation, a way to sharpen the mind while having fun.

Besides twenty-five years of the column, "Mathematical Puzzles," Gardner, now ninety-one years old, is the author of more than one hundred books and booklets and numerous articles on a range of topics that include philosophy, science, pseudoscience, religion, and stage magic.

The CD includes a profile of Gardner and an interview with him. For more details go to www.maa.org.

Something Seen, but What? Quebec's 'Wippi' Whips Up a Minor Monster Flap

Surfing Serpent Surprises Unsuspecting Sightseer

Cruising Creature Captured on Camera

Such were the twin headlines in a story in *The Record* (Wednesday, August 17, 2005, pp. 10–11), a daily newspaper published in Sherbrooke in the Eastern Townships of Québec, Canada. CTV news from Montreal also ran a story in its evening broadcast on Friday, August 19.

Apparently, we have another monster sighting. This one occurred at Lake Massawippi, where a guest at the Ripplecove Inn snapped a series of pictures of something that moved around the surface of the lake for about twenty minutes. Appropriately, the "elusive creature that dwells in Massawippi" is known as "Wippi," and joins the list of other such creatures such as Memphré (from Lake Memphremagog, also in the Eastern Townships; see *Skeptical Briefs*, June 2004, pp. 8–9), Champ (from Lake Champlain in New York State; see SKEPTICAL INQUIRER, July/August 2003, p. 24), and Ogopogo (from Lake Okanagan; see the article and column in this issue).

The newspaper story acknowledges that the so-called monster is like other legendary creatures, which implies some doubt as to its true existence, and that skeptics think that it may actually be a large sturgeon. However, most of the story dwells on the fact that a local innkeeper, on whose property the sighting was made, is convinced that the monster exists and that this is what the tourist saw. Although the innkeeper did not witness the recent sighting, he possesses the photographs, and he says they support a similar experience he and a friend had many years ago on the same lake when he was a boy.

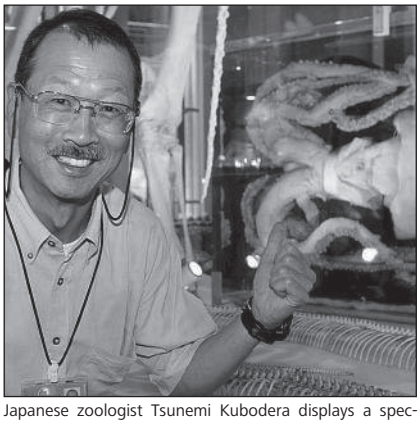
Notably, the tourist who took the pictures was quoted in *The Record* as saying "I didn't know what it was," although he was at one point "a little scared." It is the innkeeper who provides the definitive interpretation that the story highlights. (A similar process occurred with Champ; for a detailed examination, see "How Cryptozoologists Created a Monster," in the September 2003 *Skeptical Briefs*.) Of course, skeptics at a distance do not know what gave rise to the experience, but it is possible that we have another example of top-down processing in perception: an ambiguous object is perceived as a monster because of a past experience that sets the context. A person who expects to see a monster may indeed see a monster.

To *The Record*'s credit, it published a letter to the editor from me (*The Record*, Friday, August 19, 2005, p. 6) in which this critical comment was presented. But the original newspaper article, together with the CTV news report, will probably help the local tourist trade.

—Stuart McKelvie

Stuart McKelvie is a professor of psychology at Bishop's University in Lennoxville, Québec, Canada.

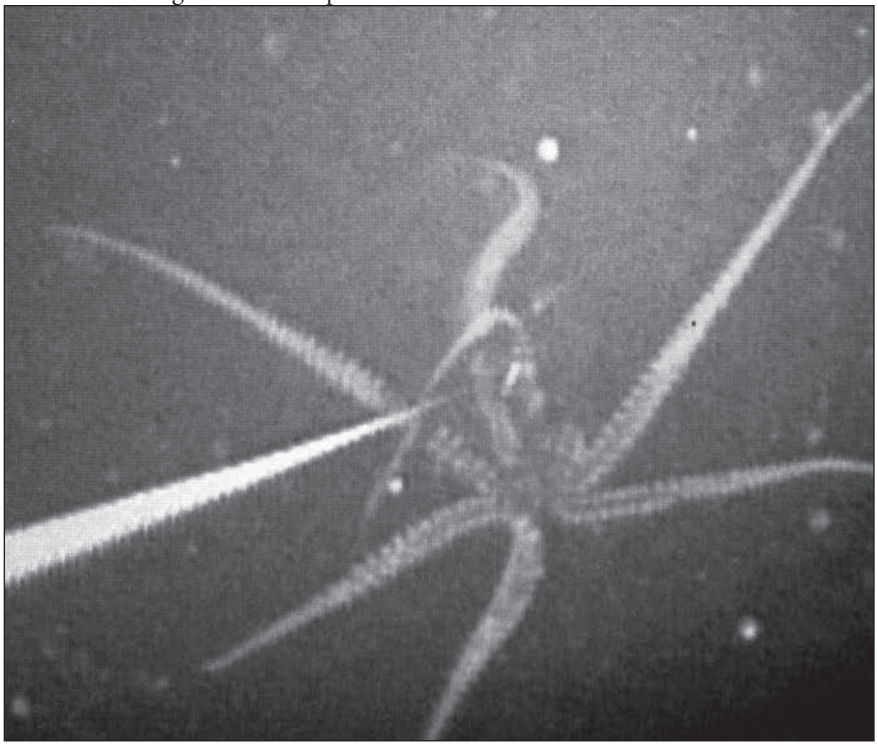
Science Sheds Light on Giant Squid



Japanese zoologist Tsunemi Kubodera displays a specimen of a giant squid at Japan's National Science Museum, in Tokyo. EPA/FRANCK ROBICHON [Photo via NewsCom].

Since men took to sea, stories of fearsome leviathans have haunted those brave enough to venture beyond dry land. The Kraken, a huge many-tentacled beast, was said to attack sailors on the open ocean and drag them to their watery deaths. As fantastic as these monsters are, science has discovered a biological basis for several of these myths. Biologists have verified the existence of a true sea monster: the mysterious and elusive giant squid *Architeuthis*, whose tentacles can reach forty-three feet long. Though never seen alive, the creatures are known to exist because dead specimens periodically wash up along the beaches of the world, most often in Newfoundland and New Zealand. The largest giant squid specimen, found in New Zealand, was estimated to be sixty-five feet long. Because the creatures live at great depths, no one had ever seen a living giant squid in its environment.

That changed on September 30, 2004, when Japanese zoologists Tsunemi Kubodera and Kyoichi Mori became the first to see and film a giant squid at depth. The creature, about twenty-six feet long, was found at a depth of 2,953 feet (900 meters). The researchers, searching whale feeding areas in the North Pacific near the Ogasawara Islands, used bait and a remote camera to film the creature.



This photo, taken September 30, 2004, by Dr. Tsunemi Kubodera's team, shows a giant squid attacking a bait in the deep sea. EPA/NATIONAL SCIENCE MUSEUM/HO [Photo via NewsCom]

SI Editor Kendrick Frazier Elected a Fellow of the AAAS

The American Association for the Advancement of Science (AAAS) has elected Kendrick Frazier, Editor of the SKEPTICAL INQUIRER, a Fellow of that organization.

The letter announcing this recognition states that Ken is being honored for his "distinguished contributions to the public understanding of science through writing for and editing popular science magazines that emphasize science news and scientific reasoning and methods." Ken has served as the editor of the SKEPTICAL INQUIRER since August of 1977. Before that he was on the staff of *Science News*, serving as the earth sciences editor from 1969 to 1970, managing editor from 1970 to 1971, editor from 1971 to 1977, and a contributing editor until 1981.

A certificate of fellowship and a golden rosette will be formally presented to Ken in February at the AAAS's annual meeting and Fellow Forum on February 18, in St. Louis, Missouri.

—David Park Musella

They watched as the squid attacked the food with its elongate feeding tentacles; after a four-hour struggle, the squid left behind one six-foot tentacle. The creature was confirmed to be a giant squid through DNA analysis.

Little is known about the behavior and ecology of the giant squid, and the sighting provided an entirely new perspective on the creature. Mori said one thing that surprised him about the sighting was the squid's aggressiveness. "Contrary to belief that the giant squid is relatively inactive, the squid we captured on film actively used its enormous tentacles to go after prey," Mori said. The pair published their findings a year after their sighting, in the September 28, 2005, *Proceedings of the Royal Society B.*

As mysterious as the giant squid is, there is a still larger species of squid in the ocean. A 330-pound, sixteen-foot female colossal squid was caught in early April 2003 in the Ross Sea, about 2,200 miles south of Wellington, New Zealand. It was dead when brought in and the remains are now in the New Zealand national museum. The body of the colossal squid is much bigger than its cousin the giant squid, which can weigh up to 2,000 pounds when fully grown. The colossal squid's eight arms and two tentacles have rows of tooth-like hooks, embedded in muscle and able to rotate 360 degrees. The arms also have powerful suckers to ensure that prey do not escape. The Ross Sea colossal squid was enormous—and likely one of the smaller specimens. Since the squid is a young female, older and male colossal squid are certainly even larger. Only one other colossal squid has been previously caught; the main evidence scientists had of their existence was their beaks, which have been found in the stomachs of sperm whales.

—Benjamin Radford

Benjamin Radford has researched giant squid and examined the world's best preserved giant squid at a museum in St. John's, Newfoundland.

Science Looks for Bigfoot but Finds Bison

Bigfoot's been a busy beastie recently, especially in Canada. In April 2005, a Manitoba ferry operator videotaped a large, dark, indistinct creature moving along a riverbank. Whatever it was—Bigfoot, bear, bison, or otherwise—it caused quite a stir and made international news (see "Bigfoot Video Surfaces in Manitoba," July/August 2005 SI). Three months later, in Yukon province, Teslin resident Trent Smarch found a tuft of coarse, dark hair in a forest where he and other locals heard a large, mysterious animal in the brush. They believe the creature was a Sasquatch, the Canadian version of the huge, hairy, humanoid mystery creature known as Bigfoot.

The find was reported across North America and around the world, and many wondered if this hair might finally prove Bigfoot's long-disputed existence. The hair sample was sent to University of Alberta wildlife geneticist David Coltman for analysis. Coltman was asked to extract any available DNA from the hair, sequence the mitochondrial genes, and compare them to a database of known regional creatures.

By far the majority of support for Bigfoot comes from eyewitness reports and anecdotes, yet this is the least reliable kind of evidence—and virtually worthless from a scientific perspective. What science needs to validate the existence of Bigfoot is hard evidence: a live or dead specimen, bones, teeth, blood, or hair. Because hard evidence is lacking—no bones or bodies have been found—Coltman's analysis was much anticipated.

The Yukon sample was not the first Bigfoot hair to be analyzed. Over

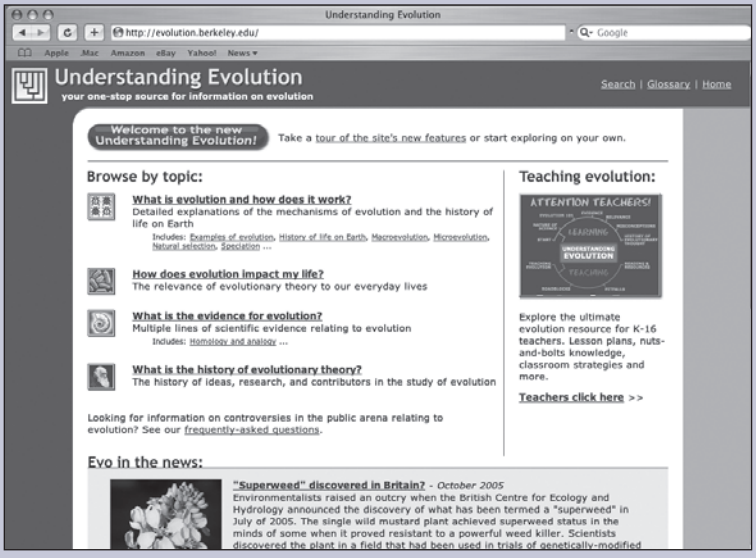
University of Alberta geneticist David Coltman holds up a sample of suspected Bigfoot hair.

the past few decades, dozens of hair and blood samples have been recovered from alleged Bigfoot encounters. When a definite conclusion has been reached, the samples have invariably turned out to have prosaic sources. On July 28, after a week of testing, the results were announced. Coltman revealed that the Bigfoot hair matched that of a bison 100 percent. It's unclear if the hair was planted as a hoax or left by a bison.

The DNA result will not, of course, deter the Bigfoot believers and eyewitnesses: one discredited sighting does not invalidate others. But this case does provide an excellent example of what happens when hard evidence of a mystery is subjected to the rigors of science. This high-profile Bigfoot hair analysis by a reputable scientist also addresses a criticism often heard by monster enthusiasts: that mainstream scientists ignore Bigfoot evidence for fear of damaging their reputations in pursuit of what some would call a myth. Yet if Bigfoot or other mystery creatures do exist, they are certainly worthy of serious scientific scrutiny. At the same time, since all previous samples were found to be hoaxes, inconclusive, or from known animals, scientists' lack of enthusiasm for spending time and resources on yet more such evidence is understandable.

Coltman, who usually does research tracking genetic links between populations of animals such as bighorn sheep, was surprised at the strong worldwide interest in Bigfoot and his analysis. The scientist hopes that the publicity surrounding the genetic analysis will carry over into a public understanding of genetics.

—Benjamin Radford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Evo in the news:
"Superweed" discovered in Britain? - October 2005
Environmentalists raised an outcry when the British Centre for Ecology and Hydrology announced the discovery of what has been termed a "superweed" in July of 2005. The single wild mustard plant achieved superweed status in the minds of some when it proved resistant to a powerful weed killer. Scientists discovered the plant in a field that had been used in trials of genetically-modified

Understanding Evolution Web Site Expanded

The University of California Museum of Paleontology and the National Center for Science Education have launched a major expansion to the "Understanding Evolution" Web site (http://evolution.berkeley.edu). The initial site was intended for teachers, but with this update the target audience is now everyone interested in learning about evolution. The site has numerous new feature articles, highlighting many aspects of evolution science, presented as interactive investigations, research profiles, evolutionary news (updated monthly), and even a comic strip. All of the site's information is now accessible via a browsable topic directory, which will grow as topics and resources are added.

'Psychic' Sex Offender Sentenced to Prison

According to a report in *The San Diego Union Tribune*, a man who gained women's confidence by offering psychic services and then raped them has been sentenced to forty years to life in prison.

In April of 2005, Nuh "Jason" Nhuoc Loi, thirty-nine years old and married, was convicted of seven felonies: sexual battery by restraint, attempted forcible oral copulation, kidnapping for forcible oral copulation, robbery and making a criminal threat, and forcible oral copulation (two counts). These acts were committed during attacks on three women between 1997 and 2003. Patrick Espinoza, the Deputy District Attorney who prosecuted the case, said that there were "numerous" additional victims.

Loi's ruse involved offering to perform psychic "readings" at the homes of his victims and then assaulting them once he was inside. However, in at least one case, Loi held a woman captive in her own car, sexually assaulted her, and stole $300.

After initial denials, Loi later admitted to the acts, first claiming that he had the women's consent and then that he attacked the women "to prove to himself he was not gay," according to the *Union-Tribune*.

The sentencing took place on October 20, 2005. Loi will serve his sentence in the California state prison system.

—David Park Musella

REACH OUT TO A NEW FUTURE!

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Transnational

New Future Fund

This phase of the campaign spotlights a family of high-impact projects.

As construction of the Center for Inquiry–*Transnational* expansion is completed, we turn to new challenge goals in our multi-year, $26.26 million **New Future Fund** campaign.

The **New Future Fund** is an ambitious campaign to support the Center for Inquiry, the Committee for the Scientific Investigation of Claims of the Paranormal, and the Council for Secular Humanism through endowment funding and support for expanded programming. The **New Future Fund** was launched after thorough study, and its goals reflect needs judged indispensable if the Center for Inquiry is to continue serving society as the leading champion of reason, scientific naturalism, and humanist values.

The Center for Inquiry has obtained United Nations recognition as a nongovernmental organization (NGO), opening new avenues for activism and human enrichment.

The Center for Inquiry presses for humanism, science, and reason worldwide. Centers for Inquiry have been established in Argentina, China, Egypt, France, Germany, India, Nepal, Nigeria, Peru, Russia, and elsewhere, pursuing regionally tailored agendas.

The Center and its affiliates have facilitated international meetings of humanists and skeptics for more than two decades. Your gift to the **New Future Fund** will help this transnational expansion continue.

Opposing Creationism/ Intelligent Design

Intelligent Design (ID) theory is creationism's new face, sparking some 70 new controversies in an astonishing *26 states*. CSICOP is gearing up to **fight back** with grassroots outreach to mobilize skeptics at the local level when ID proposals loom; a stimulating new Web site, www.csicop.org/creationwatch; and media outreach, from new literature to books to top-shelf online columnists.

As ID advocates plan to shoulder Darwin and the scientific viewpoint out of public schools, the **New Future Fund** helps CSICOP say **no!**

Outreach

The Center for Inquiry movement began with publishing, still essential to our mission. *Skeptical Inquirer* and *Free Inquiry* headline a family of magazines in three languages, newsletters, and Web sites. Professional public education and media relations further amplify our message. Campus outreach presents our message of science and reason to the leaders of tomorrow.

Your gift to the **New Future Fund** can help to support core publishing outreach (this issue of *Skeptical Inquirer* is four pages longer than early-2005 issues, thanks to support from the **New Future Fund**), fuel our exploitation of new communications technologies, and fund more aggressive on-campus programs. The **New Future Fund** is key to the future promotion of skepticism, science, reason, and humanism by the Center for Inquiry and its affiliates.

Your gift to the **New Future Fund** can support these and other urgent priorities. We gratefully accept gifts of cash, publicly traded securities, paid-up insurance policies, and other assets. We are pleased to offer attractive incentive and naming opportunities to honor major contributors. All gifts are fully tax-deductible as provided by law. Campaign personnel are available to meet with donors to provide updates on our plans and to discuss other commemorative opportunities tailored to particular needs and interests.

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The Center for Inquiry, the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), and the Council for Secular Humanism are 501(c)(3) tax-exempt charitable organizations.

Phantom Photos: Credulity at the Met Exhibit

"The Perfect Medium: Photography and the Occult": An Exhibit at the Metropolitan Museum of Art, New York City, Sept. 27–Dec. 31, 2005.

One of the odder features of the past three centuries is the way that technology has been used to enhance decidedly nonscientific phenomena. Thomas Edison, for example, built a machine to contact the dead (see Martin Gardner's "Thomas Edison, Paranormalist," SKEPTICAL INQUIRER, July/August 1996, reprinted in *Did Adam and Eve Have Navels?*, 2000).

Photography, which emerged from a welter of experiments in the first decades of the nineteenth century, was swiftly and eagerly embraced by spiritualists, who used the new medium in an attempt to prove the existence of an afterlife. The relationship between the camera and spiritualism was documented in "The Perfect Medium: Photography and the Occult," a survey of photos, mostly from the late nineteenth and early-twentieth centuries, at new York City's Metropolitan Museum of Art (September 27–December 31, 2005). It was a curious show.

The exhibition was divided into three parts: ghosts (beginning with the work of William H. Mumler, the first specter portraitist, in Boston in 1865); séance sorcery (levitations, ectoplasm, et al.); and (to quote from an exhibit description) "fluids emanating from the human body: auras, vital energy, thoughts, feelings, and dreams."

There were two ways to approach the show. The first, which the Met probably found most congenial, was to view the image purely as art objects. The problem was that they weren't art; they were, for the most part, banal. Stiffly posed Victorian and Edwardian ladies and gentlemen kept company with stiffly posed spirits. And what wretched wraiths they were: they looked quite melancholy, as if they yearned to flee to the Great Beyond. (Who can blame them?) The only apparition that provoked a teasingly tingly sensation, that put the dead in dread, was the eerie ghost of Bernadette Soubirous (ca. 1890), who did a solo and deliquesced in stages through a brick wall. The picture's unknown creator was manifestly more skilled than his fellow mountebanks at jiggering the photo-developing process.

The images, of course, weren't meant to be works of art; they were meant to bamboozle. This circumstance underpinned the second way to see the exhibit: as a record of guile and greed. Unfortunately, when the Met, one of the world's great art museums, addressed this subject, it behaved irresponsibly.

The show's introductory remarks contained this statement: "Although we may sometimes wonder at the credulity of their original viewers, the photographs are presented on their terms, without authoritative comment on their veracity. Whatever else they may tell us, these stunning images of ghosts, spirits and séances serve as eloquent witnesses to the power of the imagination and the perpetual love of the unknown."

This is coy, condescending—and callous toward many vulnerable men and women who lost loved ones during the Civil War and World War I and were desperate to reconnect with those prematurely and brutally killed. Corrupt and crackpot spiritualists preyed on those grieving individuals, and the museum's disdainful refusal to forcefully confront this aspect of spiritualism was shameful.

In any case, the exhibition was packed and the crowds were serious and respectful; there was little snickering. In a nearby gallery a Duccio painting of the Madonna and Child, one of the milestones of Western art and recently purchased, with great fanfare, for a king's ransom, stood forlorn, perused by no one.

Eugène Thiébault (French, born 1825) Henri Robin and a Specter, 1863 Albumen silver print 22.9 x 17.4 cm Collection of Gerard Lévy, Paris.

Frances Griffiths (British, 1908–1986), Elsie Wright (British, 1901–1988). Fairy Offering Bouquet of Bluebells to Elsie, 1920, Gelatin silver print 12 3/8 x 10 in. Société astronomique de France, Fonds Camille Flammarion, Paris

—*Howard Schneider*

Howard Schneider is a writer and editor in New York City.

Paranormal Researcher Selected as President of National Taiwan University

Professor Si-Chen Lee, a scientist famous for his interest in paranormal phenomena, was selected as the president of the National Taiwan University (NTU) on June 22, 2005, by the Ministry of Education in Taiwan. The selection drew criticism, because Lee was not the university's first choice. The selection sparked further nationwide controversy over Lee's paranormal research.

With a Ph.D. from Stanford, Professor Lee is a reputable scientist in the field of solid-state physics. He is an IEEE Fellow and received the IEEE Third Millennium Medal for outstanding achievements and contributions in the area of semiconductor devices in 2000. He has also received many other awards from the National Science Council and Taiwan's Ministry of Education.

In 1988, with the support of the chairman of the National Science Committee, Lee attempted to track "the remaining signal of spirits" at National Taiwan University Hospital but did not find anything. Following that unsuccessful attempt, Lee became interested in "Human Spiritual Power." One of his most famous studies is the "finger-reading" experiment: Lee claimed that ten to forty percent of school-aged children have dermo-optical perception if trained properly. He also claimed that he had confirmed several psychics' ability to "retrieve a pill from a bottle without opening it" and even produce "herb powder from the void."

Some of Lee's supposedly confirmed psychics were unable to perform under strict conditions. For example, in the mid 1990s, Shin-Nan Yang, a professor from the NTU Department of Physics, tested one of Lee's star subjects, Mai Takahashi, in a situation arranged by Lee. Yang discovered that Takahashi can't "see" anything with her fingers when using paper and envelopes prepared by Yang.

Several famous magicians have also shown that such phenomena can be achieved without any supernatural power; others have caught those psychics cheating. In 1996, James Randi declared on the Tokyo Broadcasting System (TBS) that TBS's camera caught Takahashi cheating, but this was cut before the show was broadcast. In January 2001, Lee invited Ying (Chang), a psychic from Mainland China, to his lab to test her ability to "obtain herb powder from the void." After the successful performance, Lee announced that he was convinced.

Professor Si-Chen Lee

However, later in June, Chang was convicted of fraud. Lee later said that he was planning to further test her ability and had no intention of endorsing her before he had gotten more solid evidence.

As a scientist, Lee knows how to combine science and popular language to describe his work. The method described in his reports is logical and objective, which makes those reports look convincing, especially if one ignores the possibility of intentional fabrication or falsification. Indeed, few scientists are willing to question Lee's honesty. Professor Shin-Nan Yang had mildly commented that many faculty members in the NTU Department of Physics think it is good to use a scientific approach to explore the unknown, but that Lee can be convinced by psychics too easily.

There are still people who dare challenge Lee directly. But just several days after the announcement of Lee becoming the new president of NTU, Hei-Yuan Chiu, a research fellow from the Institute of Sociology of Academia Sinica, denounced Lee for violating scientific ethics. Chiu pointed out that some citations in Lee's reports were found to be distorted, incorrect, or even nonexistent.

Shin-Nan Yang also mentioned that when he met the Nobel laureate Chen-Ning Yang in Mainland China, Chen-Ning Yang commented that Lee's claim of "retrieving a pill from a bottle without opening it" was "totally ridiculous."

Lee has been low-key about such controversies since accepting the position as university president. He agrees that his theories about these paranormal phenomena are tentative, and that his early theory "is very possibly wrong." He also stated that the scale of his research into paranormal phenomena will be reduced greatly, and he will not let his personal interests interfere with his duty to make NTU a world-class university.

—Po-Nien (Bob) Lu

Po-Nien Lu is a research assistant at the Institute of Neuroscience, National Yang-

'Toward a New Enlightenment' World Congress

The International Academy of Humanism and the Center for Inquiry cosponsored a World Congress titled "Toward a New Enlightenment." The conference, held in Amherst, New York, on October 27–30, 2005, brought together distinguished scientists, academics, and authors from France, the United Kingdom, Poland, Russia, Spain, Israel, Turkey, Egypt, Sweden, and other countries. They discussed the moral and scientific challenges facing the world, including the strong forces opposing scientific progress, such as those opposed to stem-cell research and world population control. Examples of antiscience and anti-intellectualism abound, including the recently revived efforts to supplant science education in our schools with creationism. Sessions included "The Role of Science and Education in Public Policy Formation," "Media Misinformation," and "Strategies for Reviving Enlightenment Values." Speakers included Nobel Prize laureates Sir Harold Kroto and Herbert Hauptman, biologist and author Richard Dawkins, CFI chair Paul Kurtz, anthropologist Lionel Tiger, philosopher Antony Flew, and writer/producer Ann Druyan. □

Richard Dawkins, Ann Druyan, and Paul Kurtz speak at the Center for Inquiry's Grand Opening Gala.

Sam Harris, Herbert Hauptman, Paul Kurtz, Susan Jacoby, Andrzej Dominiczak, and Jean-Claude Pecker during a panel discussion.

Mentalist Max Maven. Photos by Andrew Skolnick.

Ken Frazier and Paul Kurtz present an award to Sir Harold Kroto.

The First Ibero-American Conference on Critical Thinking

BENJAMIN RADFORD

The Committee for the Scientific Investigation of Claims of the Paranormal took an important step in establishing a skeptical presence in Latin America with a conference held in Buenos Aires, Argentina, September 17 and 18, 2005. The conference, co-sponsored by *Pensar* magazine and the Center for Inquiry, drew over 100 attendees from Chile, Brazil, Puerto Rico, the United States, Spain, Argentina, Uruguay, and Paraguay.

Speakers included Jorge Alfonso Ramírez (*Pensar* representative, Paraguay); Hugo Estrella (journalist, Argentina); Richard Branham (astronomer, Argentina); Luis A. Gámez (*Pensar* representative, Spain); Alejandro Agostinelli (journalist, Argentina); Ernesto Gil Deza (oncologist, Argentina); Enrique Márquez (magician Argentina); Gerardo G. Primero (psychologist, Argentina); Joe Nickell (investigator, USA); Norm Allen (editor, USA), Celso Aldao (physics professor, Argentina); Widson Porto Reis (engineer, Brazil); Mariano Moldes (biologist, Argentina); Tim Madigan (philosophy professor, USA); Tim Delaney (philosophy professor, USA); Pablo Mira (economist, Argentina); Benjamin Radford (investigator, USA); Diego Zúñiga (*Pensar* representative, Chile); and Pablo Capanna (philosophy professor, Argentina). Alejandro Borgo, editor of *Pensar* and the conference organizer, gave entertaining and informative talks about the need for skepticism in Argentina and his personal experience in trying to test paranormal claimants. Paul Kurtz, chairman of the Center for Inquiry and CSICOP, was unable to attend but delivered a videotaped address to begin the conference.

The conference drew over 100 attendees from Chile, Brazil, Puerto Rico, the United States, Spain, Argentina, Uruguay, and Paraguay.

Speakers from many countries gave presentations at the conference in Buenos Aires.

Among the North American contingent, CSICOP Senior Research Fellow Joe Nickell gave a talk on his years

Benjamin Radford is managing editor of Skeptical Inquirer *and* editor jéfe *of* Pensar, *the Spanish language skeptics magazine.*

of experience investigating the paranormal, including weeping icons and the Shroud of Turin. Delivering my speech in Spanish, I discussed real-world examples of the importance of keeping a vigilant skepticism. Norm Allen, director of African Americans for Humanism, spoke on religion and the growth of home remedies and witch doctor healing in Latin America and Africa. Philosophy professor Tim Madigan regaled the participants with a talk on W.K. Clifford's 1887 treatise on the nature of belief.

There was a wide range of topics, and the speakers were uniformly good. There were a few tense moments when Luiz Gámez of Spain revealed CSICOP's role in a global conspiracy. Several representatives, including me, began thinking of ways to silence Gámez before the next day's sessions, but it soon became clear that he was speaking satirically (or so he thought) and that our sinister mission had not been compromised. We quietly sheathed our ricin-tipped canes. Enrique Márquez discussed some examples of faith healers in Argentina and the damage they can do. In one case, the skeptics had a celebrity on their side, an actress whose sick father had gone to a faith healer but had not recovered. The news media at first ignored her criticisms of the alleged healer but relented once she and Márquez pressured them. Brazil's Widson Porto Reis discussed the presence of pseudoscience in Brazilian colleges and universities and the reluctance of many academics to acknowledge and denounce this educational travesty. Chilean journalist Diego Zúñiga gave a presentation on the paranormal in Chile's newspapers and magazines. He pointed out that paranormal topics often appear in the social and lifestyle sections, such as a profile of a woman who believes her dead father speaks to her and her family.

Alejandro Borgo was roundly and justifiably congratulated for his Sisyphean work organizing the event. In a bid to show that skeptics are not humorless doubters, Borgo scheduled performances by two entertaining magicians, Marduk and Merpin.

Conference organizer Alejandro Borgo gives a presentation.

Skeptics from throughout Latin America mill around back issues of *Pensar* magazine.

The audience included many journalists, as well as quite a few younger women—a nice change of pace for an organization whose ranks at times seem dominated by older white males. One of the most gratifying things to come from the conference was the sense of community: skeptics and humanists from a half-dozen countries and three continents, speaking three or more different native tongues, drawn together for a common purpose. Many were heartened by the enthusiastic responses and the sense that we were in the first stages of a movement that, if properly supported and nurtured, may grow into an important and powerful force for rationality, science, and skepticism in Latin America.

The Ibero-American Conference on Critical Thinking was the first skeptical event in Latin America since 1989, when CSICOP held an event in Mexico City, Mexico. A follow-up conference is to be held in Lima, Peru, in August 2006. Other potential conference sites that have been discussed include Rio de Janiero, Brazil, and another in Buenos Aires. □

Ogopogo: The Lake Okanagan Monster

Among the world's lakes reputed to host a great unknown creature is Lake Okanagan in the Canadian province of British Columbia. Known as Ogopogo, the leviathan is said to be "one of the most thoroughly documented unidentified lake creatures," second only to Scotland's Nessie, and "possibly the most famous North American monster aside from Bigfoot" (Blackman 1998, 69). Noting that Ogopogo has been dubbed Canada's Loch Ness Monster, cryptozoologist John Kirk (1998, 4) counters that the description ought to be the reverse: "Since the appearances of the Canadian beast predated those of its Scottish cousin, it ought to be said that Nessie is Scotland's Ogopogo."

But does such a monster exist? Benjamin Radford and I have long been interested in the alleged Okanagan Lake denizen, and we resolved to look into the mystery. As luck would have it, National Geographic Television was also interested. (Ben's analysis of the Ogopogo phenomena appears in this issue, page 41.)

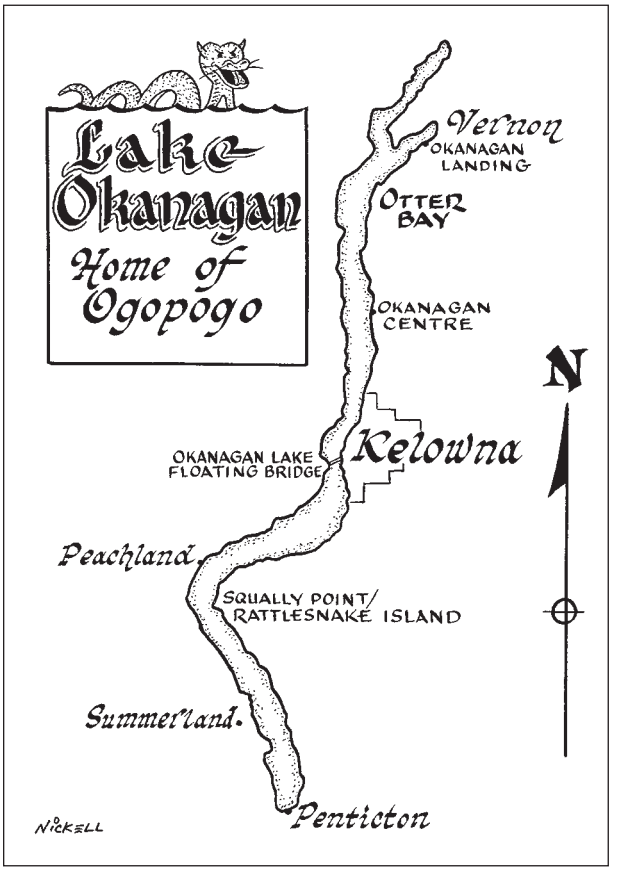

Figure 1. Map of Lake Okanagan illustrates selected sites.

The Monster's Lair

Okanagan is the largest of a group of five interconnected lakes in the Okanagan Valley of south-central British Columbia. Named for the local forest-dwelling Native Americans, the Okanagan people, the narrow fresh-water lake stretches for some seventy-nine miles from its southern extremity at Penticton to its northern tip near Vernon (see figure 1). It is thus over three times the length of Loch Ness and, at a maximum depth of 762 feet,[1] slightly deeper as well. Formed from an ancient valley, it was filled by waters from glacial melting which was complete about 10,000 years ago (Roed 2005).

Okanagan is only one of many Canadian lakes reputed to provide a home to leviathans. At least thirty-nine of the lakes in British Columbia alone reputedly have such "aquatic anomalies," according to John Kirk, author of *In the Domain of the Lake Monsters*. However, he singles out Okanagan as "the lake of mystery" (Kirk 1998, 28, 11).

The scenic lake rarely freezes over—only about four times in the twentieth century (Okanagan 2005a)—and it is famous for its sandy beaches, campsites, and resorts. Fishing charters promise "big fish," which include rainbow trout and kokanee (Okanagan 2005b). Okanagan Lake is within the range of such aquatic mammals as beaver, muskrats, and otters (Whitaker 1996), and waterfowl including ducks, mallards, geese, and many others (Bull and Ferrand 1994). Some of these creatures might provide food for a giant lake creature, if such indeed existed.

According to folklore attributed to

Joe Nickell, CSICOP's Senior Research Fellow, has investigated paranormal claims worldwide for more than three decades. His recent books include The Mystery Chronicles *and* Secrets of the Sideshows.

the native culture, the monster was a demonic entity called N'ha-a-itk, and its home was Rattlesnake Island or a cave beneath it or adjacent to Squally Point (Gaal 2001, 113, 122–123; Kirk 1998, 47). The arrival of white settlers continued to spark interest in the Okanagan monster though not always with high seriousness.

The palindromic name Ogopogo[2] came from a 1924 music-hall song. Titled "The Ogo-Pogo: The Funny Fox-Trot," the song was about a banjo-playing water-being from Hindustan (Shuker 1995, 100). It was performed at a luncheon in Vernon, B.C., on August 23, 1926. As a result of the catchy song—according to an account I discovered at the library in Kelowna—"the guests left the Kalamalka Hotel to spread the fame of Ogopogo far and wide" (Brimblecombe 1930).[3]

The Ogie Expedition

National Geographic Television (NGTV) invited the two of us on an expedition to Lake Okanagan—a week's quest to find the fabled creature, or to explain the monster phenomenon. Apart from travel, we spent more than four days on site, investigating the mystery: interviewing eyewitnesses and studying photographic evidence; conducting historical and other research (much of it in advance of the expedition); performing an experiment regarding one recorded sighting; and traversing the lake and its shores by foot, auto, sonar-equipped boat (with professional divers on board!), and seaplane.

Accompanying us for much of this grueling work was Canadian cryptozoologist John Kirk. We were also assisted by Arlene Gaal, whose book *In Search of Ogopogo* was never far from our fingertips. In her home in Kelowna, she made available for study many of the photographs, films, and videos that purport to depict Ogopogo. Our relationship with these two monster hunters was so respectful and cordial that NGTV producer Noel Dockstader seemed to wish for more sparks between us.

The second full day of our expedition—Saturday, February 5, 2005—was the most exhausting. After an early breakfast, we boarded a houseboat at the Grand Okanagan Lakefront Resort (where we roomed). We were loaded for monster hunting: In addition to the TV crew of four, were the two of us and John Kirk, as well as the boat pilot and his relief, two men in charge of sonar, and a diving crew of three—some thirteen men and one woman (Brook Holston of NGTV) plus an impressive amount of gear and equipment. We also towed a motorboat, which served many practical uses, including filming, and was available in case of any mishap.

Figure 2. Divers with the National Geographic Television expedition search for caves beneath Rattlesnake Island.

Figure 3. Side-scanning sonar search of a portion of the lake revealed no leviathan.

We covered much of the southern half of the lake, giving special attention to Rattlesnake Island (a.k.a. Monster Island) and its environs. Two divers went down to search for the caves that are legendarily home to Ogopogo (figure 2), while Ben, John Kirk, and I motorboated to the island and scrambled onto the rocks. These searches yielded only underwater fissures too small for a leviathan and an island devoid of bones or other traces of Ogopogo's supposed prey.

Darryl Bondura searched the depths with side-scanning sonar, which also turned up nothing of significance (figure 3). He says he has scanned several square miles of Okanagan's bottom—once identifying an ultralight plane at about 100 feet deep—but has never seen a large lake denizen or even the skeleton of one (Bondura 2005).

Two days later, Ben and I flew over the same area in a seaplane (figure 4) scouring the waters for any sign of Ogopogo.

Figure 4. Rattlesnake Island is viewed from a seaplane. Photos by Joe Nickell.

Despite the excellent viewing the plane allowed, Ogie was still a no-show.

Much of our assessment of the Ogopogo phenomenon thus necessarily depended on the reports of eyewitnesses—including Gaal and Kirk. We also analyzed the numerous sightings chronicled in Gaal (2001, 185–208), and we studied original photographs and film and video footage.

The Sightings

In preparing for the trip to Okanagan, I studied the approximately 330 eyewitness sightings—ranging from the eighteenth century to 2001—listed in the "Chronology" to Gaal's *In Search of Ogopogo* (2001, 185–208). Mentally, I rounded up the usual suspects: wake effects, bobbing logs, beavers, otters, schools of fish, and many others. Although sturgeon represented a probable candidate for some Lake Champlain sightings, at Okanagan their presence has not been established; indeed, rewards of up to $10,000 have failed to produce a single sturgeon (Gaal 2001, 19).

Since Mrs. Susan Allison's sighting of 1872—the first by a white settler—eyewitness reports of Ogopogo have proliferated. Blackman (1998, 69) and others overstate the uniformity of descriptions of Ogopogo, whereas they actually seem quite varied.

For example, the *color* ranges from light to dark green, dark brown, brown-black, blackish gray, to jet black; at least one source mentioned a white underside, and the *skin* was smooth, snakelike, or shiny. The *height* out of the water is variously stated as in the three- to seven-foot range, with estimates of up to fifteen feet. The *length* is exceedingly variable, and includes small creatures dubbed "Ogopups" and larger animals of some eight to seventy feet long. The *head* has been likened to that of a snake, sheep, cow, deer, or horse, with protrusions said to be horns or ears, and with beady eyes and whiskers. The *body* is said to resemble a log or great snake, featuring "saw-edged coils" or one to several humps. *Appendages* reportedly include various fins, or flippers or webbed feet; sometimes it has a forked tail. The creature's *movement* is often described as "undulating," but it frolicks, splashes, swims rapidly, slaps the water with its tail, and so on (Gaal 2001, 185–208).

It seems extremely unlikely that eyewitnesses were seeing a single type of creature—let alone that it was a plesiosaur, zeuglodon, basilosaurus, or other extinct or unknown creature. However, by picking out some of the more common features and allowing for misperceptions and exaggerations, I was able to produce a composite drawing of Ogopogo (figure 5) and show its similarity to the otter—actually *otters*, swimming in a line (figure 6). As with other lake monster habitats around the world, Lake Okanagan coincides with the habitat of otters, in this case the Northern River Otter, *Lutra canadensis*, as shown in the *National Audubon Society Field Guide to North American Mammals* (Whitaker 1996, 782–785).

Of course, not all sightings are of otters, just as not all UFOs are weather balloons. However, they may well be responsible for some of the best sightings such as one in 1989 by John Kirk (1998, 52–53) and others: The animal was an estimated thirty-five to forty feet long and consisted of "five sleek, jet-black humps" and a lashing tail. It was moving very fast—perhaps, the eyewitnesses

Figures 5 and 6. Author's composite drawing of Ogopogo (top) is compared with otters swimming in a line (after Gould 1976).

thought, twenty-five miles per hour. Such an estimate is probably inaccurate, based as it necessarily is on multiple unknowns (i.e., size of "animal" and distance from viewers). It should be noted that "Otters are among the fastest swimmers of all animals," having a six-miles-per-hour cruising speed and the ability to go "much faster" (Otter 1993).

On Film and Video

Photographic evidence of Ogopogo is generally poor, as we found from perusing Arlene Gaal's collection at her home in Kelowna. However, she showed us three film/video sequences that were of interest:

• *The Folden film*: This footage was shot by Art Folden in August 1968. Driving along Highway 97 with his family, he saw something moving in the water and pulled off the road to record the object with his 8-millimeter movie camera. The result is what resembles a fast-moving log. Most observers think it is a swimming creature, although I think it could be two, one swimming behind the other. Folden estimated the object as 300 yards offshore, and Ogopogo enthusiasts have concluded the object was very large and moving quite fast (Gaal 2001, 46–52; Kirk 1998, 47–48).

Ben sold NGTV on the idea of doing an on-site experiment regarding the Folden film. This we accomplished on Sunday, the day after our boat excursion. We selected a site south of Peachland that Ben, John Kirk, and I agreed was either Folden's original site or a nearby one consistent with it. Briefly, the experiment involved placing a boat at varying distances from the shore, established by a surveying crew. The three of us agreed on an approximate off-shore distance we thought was about where Folden's creature would have been. The results demonstrated that the distance was far less than Folden had thought, and therefore estimates of the object's size and speed had to be reduced accordingly.

• *The Thal film*: On August 11, 1980, some fifty tourists watched as Ogopogo performed for about forty-five minutes off the beach at Kelowna. Larry Thal of Vancouver shot some 8-millimeter film of the event (Gaal 2001, 52–55). Unfortunately, the footage is only about ten seconds long, and "a large dark appendage that moves out of the water" (Gaal 2001, 54) appears to be one of many defects of the old film. Gaal (2005) conceded to me that the film might depict two creatures rather than just one; if so, I would suggest a pair of otters.

• *The DeMara video*: On July 24, 1992, Paul DeMara videotaped, off Kelowna, "something or some things" that were "traveling just below the surface of the water at a fairly good speed, estimated at five miles per hour." Suddenly a boat appeared, towing a water skier, and crossed the line of movement, whereupon the skier tumbled into the water. About five minutes later, DeMara saw and filmed what he termed "a similar anomaly" (Gaal 2001, 64), estimated by Gaal at thirty feet long and composed of three sections. Several minutes later came a third sighting of something moving under water (Gaal 2001, 62–67).

Gaal (2001, 62–66; 2005) agrees there were several "creatures" (she counted seven) in the first video sequence, and I think they look remarkably like otters. I also believe the second and third sequences do not represent a single three-section creature but rather otters swimming in a line.[4]

Yet another videotape, shot by Ken Chaplin on July 17, 1989, has been dismissed by wildlife experts as "most likely a large river otter or beaver" (Gaal 2001, 71), and John Kirk is among many who agree (1998, 64).

Conclusions

Despite many sincere eyewitnesses, a critical look at the evidence yields no proof of a large unknown creature inhabiting Lake Okanagan. Mundane explanations can account for the reports, and the very best sightings may be of Northern River Otters swimming in a line. They imitate the very look of a serpentine creature—an image inherited from sea-monster tales and Native American legends—that people now expect to see, and some indeed do perceive, on "the lake of mystery."

Acknowledgments

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Notes

1. Greater depths have been claimed, e.g., "nearly 1,000 feet (305m)" (Gaal 2001, 14).

2. A palindrome is a word, phrase, etc., that reads the same forward or backward.

3. The facts regarding the song have often been misreported. For example, Blackman (1998, 71–72) says W.H. Brimblecombe wrote the song, and Gaal (2001, 88) that it was sung at Vernon in 1924.

4. An alternate skeptical view comes from an FBI video specialist, Grant Fredricks (2005), who analyzed the DeMara video and concluded that what he saw was "very consistent with debris from a fallen tree in the water . . . the objects very slowly bob up and down." He also pointed out, as we did, that the objects don't react to the approaching boat or skier, nor does the skier seem at all alarmed by the objects. This suggests that the skier recognized whatever was in the lake and knew it was not unusual, nor a threat.

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Planet X and the Issue of Definitions in Science

Planet X, the long-hypothesized tenth member of the solar system, has finally been discovered by a group of astronomers at the Gemini Observatory in Hawaii and Yale University. Or has it? Controversy is raging over the question of whether X (at the time of printing unofficially called "Xena," after the warrior princess of recent television memory) is in fact a planet, a "planetoid," or just a large asteroid. At roughly 3,000 kilometers in diameter, Xena is smaller than Mercury (4,900 km), but larger than Pluto (2,300 km). Well, that ought to settle it, right? After all, isn't Pluto a planet?

Maybe. First of all, size is not all that matters: The moon measures 3,500 kilometers, Europa—one of Jupiter's moons—3,100, and Triton (Neptune's moon) 2,700. So Xena easily falls between planets and moons (as does Pluto).

Then there is the issue of the sharp skewness of Xena's orbit: most planets have an orbit that lies more or less on the same plane as Earth's orbit (I'm taking our own rock for comparison out of pure anthropocentrism, not because of any cosmic significance), while the new planet is by far the most skewed, with a deviation of 44 degrees off the average! But Mercury also sticks out of the pack, and Pluto even more so (though neither approaches Xena's inclination in this respect).

This artist's concept shows the planet catalogued as 2003UB313 at the lonely outer fringes of our solar system. The planet was discovered by the Samuel Oschin Telescope at the Palomar Observatory near San Diego, California, on January 8, 2005. Image credit: NASA/JPL-Caltech

In 1999 the Minor Planet Center (MPC) proposed to consider Pluto itself, while still a planet, a member of the so-called Kuiper belt, an area of planetoids (whatever *they* are!) beyond the orbit of Neptune. The proposal was quickly withdrawn because of loud protests by the astronomical community, concerned with the perception of downgrading Pluto. However, Gareth V. Williams, who directs the MPC, still supports a "dual status" for Pluto,

PLANET X AND THE ISSUE OF DEFINITIONS IN SCIENCE
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The Walrus Was Paul!

Did you know that Paul McCartney, the ex-Beatle, never actually left the band because . . . he died in 1966 and was then replaced by a lookalike? It sounds bizarre, and it is. The "Paul is dead" myth is one of the most popular myths set in the world of rock music and perhaps the most fun to follow up.

It all began on October 12, 1969, when Russ Gibb, a DJ for Detroit's underground station WKNR-FM, received a phone call by a man named "Tom," who claimed that some Beatles records contained hidden clues suggesting that Paul McCartney had actually died.

The evidence for a conspiracy revolved around the theory that Paul had been decapitated in an automobile wreck after he left Abbey Road studios in London, where the Beatles recorded their music. Paul had apparently left upset over an argument with the other Beatles, took his Aston Martin sportscar, and perished in a horrible accident that killed him.

This accident supposedly took place at 5 A.M. on November 9, 1966, and was caused by a hitchhiker named Rita who Paul had picked up along the road.

With Paul's death, however, a big problem arose: the Beatles were at the peak of their career and the loss of one of their members would mean the end of the show for them and for the industry behind them. Thus, somebody had the idea of never revealing Paul's death and hiring an impostor in his place, somebody who looked like him and could play music. Some sources claimed that the imposter was an actor named William Campbell, the winner of a Paul McCartney lookalike contest and, conveniently, an orphan from Edinburgh. Of course, it didn't hurt to assume that Campbell could write the same type of songs as McCartney and just happened to have the same voice.

John Lennon and Paul McCartney are shown on their arrival at Palam airport, near Delhi, India, on their way to meet with their guru, The Maharishi Mahesh Yogi. Photo by UPPA/ZUMA Press. Copyright 1966 by UPPA [Photo via NewsCom]

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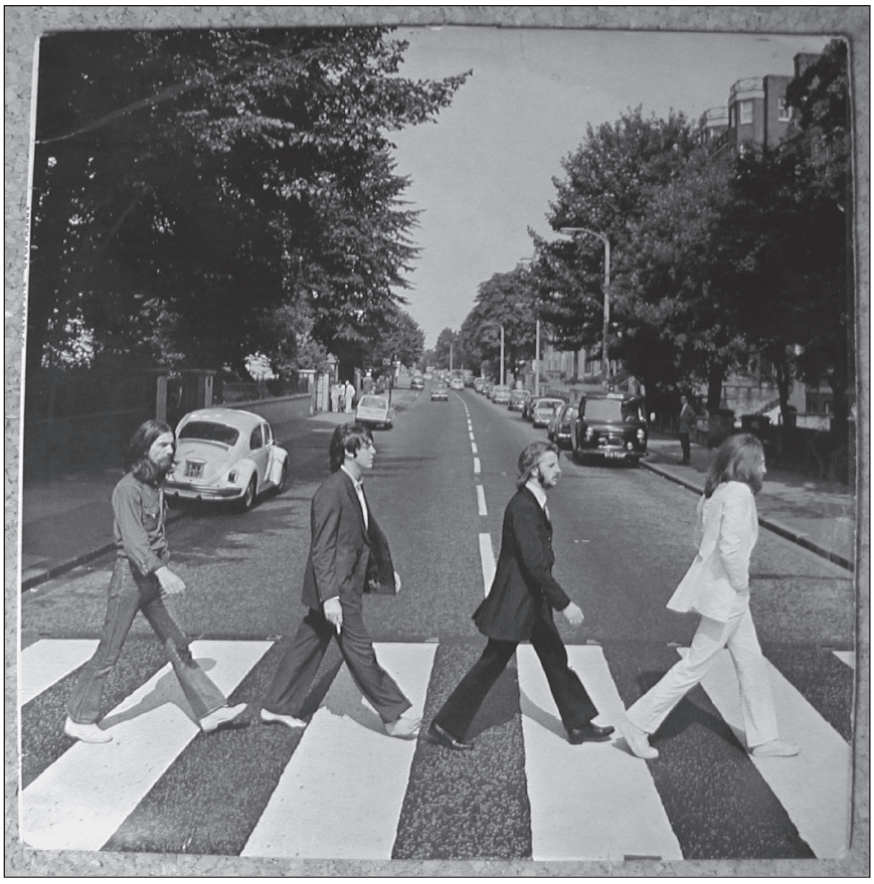


Abbey Road cover art contains many clues to Paul McCartney's (non)death.

The arrival of an impostor in November 1966, then, could have explained why the Beatles stopped touring that same year (it would have been too easy to spot a fake McCartney performance on stage) and started to grow moustaches (the face was almost identical, but not perfect: it needed some disguise).

However, this terrible secret generated in the remaining Beatles, John Lennon, George Harrison, and Ringo Starr, a strong sense of guilt and induced them to insert many hints and clues to the truth in their songs and album covers.

I Buried Paul

What had revealed the existence of a conspiracy to the mysterious "Tom" was the publication, two weeks before his telephone call, of the Beatles's latest album, titled *Abbey Road*. The album cover showed the four Beatles walking in a single file across the now-famous crosswalk at Abbey Road. This was thought to symbolize a funeral procession: John Lennon, dressed in white, represented the Church (and white is the traditional color of mourning in many Eastern cultures); Ringo, dressed in black, represented the undertaker. Paul was out of step with the other three Beatles, with his eyes closed and barefoot: in a number of societies, it appears that corpses are buried without their shoes; furthermore, Paul held a cigarette in his right hand, when everybody knew that the real McCartney was left-handed! George Harrison, last in line, was dressed in work clothes and, to many, represented the gravedigger.

On the street there is also a parked Volkswagen Beetle whose license plate shows an eerie message: "LMW 28IF," interpreted to mean that Paul would have been twenty-eight *if* he had lived. The fact that Paul was actually twenty-seven years old when *Abbey Road* was released doesn't seem to make much difference, for in far Eastern societies (the Beatles had quite a fascination with the Far East) an individual's birth included the time spent in the mother's womb. In that case, Paul would indeed have been twenty-eight.

These "revelations" quickly launched an unprecedented outbreak of hysteria in the pop world and in the media, as more and more "clues" were found in previous Beatles records.

First of all, the clue-diggers looked at *Sgt. Pepper's Lonely Hearts Club Band*, the first album that the Beatles recorded after Paul's supposed demise. Released on June 1, 1967, the record was among the most influential in music history. The cover, another famous picture, showed the four Beatles dressed in band uniforms, gathered around a bass drum bearing the album title and with a crowd of cut-out people around them. It proved to be a goldmine for clue-diggers. Again, the spectators resembled the mourners at a funeral and the flowers in front of them not only spelled the word "Beatles," but also a set of yellow hyacinths formed the shape of a left-handed bass guitar, McCartney's instrument.

Paul had a right hand raised above his head: again, supposedly, in certain Far Eastern societies, this was a symbol of death. Also, while the other Beatles held bright, golden, band instruments, Paul held a black clarinet: another supposed symbol of mourning?

A doll wore a striped "Welcome the Rolling Stones" sweatshirt: on her leg there is a small model car, strongly resembling an Aston Martin that seems to be heading towards the word "Stones." Perhaps a hint of the accident?

If you then held a flat mirror perpendicular to the center of the words "Lonely Hearts" appearing on the bass drum this hidden message appeared: "I ONE IX HE □ DIE". "I ONE IX" is a direct reference to the supposed fatal crash day (11/9/66), "HE" refers to Paul, as the diamond that points directly to McCartney confirms, "DIE".

In the open album jacket, the Beatles appear still in the *Sgt. Pepper's* uniforms and McCartney wore an arm patch that read "OPD": an abbreviation for "Officially Pronounced Dead"?

This was also the first album in history that included the lyrics to the songs appearing in the record, and they were published on the back cover, along with a picture of the four Beatles in their

outfits. Strangely, Paul is the only one turning his back to the camera, and also strange is the fact that George's thumb points to the opening lines of "She's Leaving Home." The lyric states: "Wednesday morning at five o'clock as the day begins," another reference to the day and time of Paul's fatal accident?

In another song of the album, "A Day in the Life," John sings "He blew his mind out in a car," and in another, "Good Morning, Good Morning," he starts by singing: "Nothing to do to save his life" (and was the title a play on the words "morning" and "mourning"?) And what about "Lovely Rita"? Was the song a reference to the girl that caused Paul's death? Could be, since in it McCartney (or the imposter) sings: "Took her home and nearly made it."

More clues were also found in subsequent albums. The *Magical Mystery Tour* cover showed the Beatles dressed in animal costumes. In the centre was a black walrus and, in certain Scandinavian countries, a walrus is considered a harbinger of death. Was the imposter dressed in the walrus skin? Apparently not, for John Lennon sings in the album the song titled "I Am the Walrus." But on the album cover, as if scribbled later, the complete title appears to be: "I am the Walrus ('No You're Not!' Said Little Nicola)." So who was the walrus?

In a later Beatles release (titled simply *The Beatles*, the record became better known as the *White Album* because the cover was plain white), in a song titled "Glass Onion," Lennon sings: "Well here's another clue for you all, the walrus was Paul"!

On the booklet included in *Magical Mystery Tour*, the clues abounded: Paul is shoeless in some pictures, is the only one to wear a black flower on his lapel while the others are red, has a hand above his head in various pictures, and he even sits behind a sign stating "I Was."

Near the end of the song "Strawberry Fields Forever," upon careful listening, a faint voice stated something like "I buried Paul."

You could also turn the *Magical Mystery Tour* album jacket upside-down and look at its reflection in the mirror: the title, detailed as stars, became the digits to a phone number. The rumor further explained that if the numbers were dialed, the listener would get the true details of Paul McCartney's death.

On the *White Album*, if you listened to a strange murmuring following the song "I'm So Tired," you couldn't make out what it said. But, should you decide to play the record backwards the words became something like: "Paul is dead now, miss him, miss him, miss him." Nothing compared to the chilling revelations of "Revolution No. 9," where, after reversing the song, you could hear a voice saying: "Turn me on dead man," and then the sound of a terrible collision, the sounds of crackling flames and a voice screaming "Let me out! Let me out!" A recreation of Paul's terrible accident?

"My Death? An Exaggeration"

It seems unimaginable that the American public would believe such an unfounded rumor. However, this same generation had been raised on the idea that there may have been a conspiracy to kill President John F. Kennedy and that the Warren Commission had actually worked to hide this fact from the public. Would it be so impossible, then, to believe that Paul McCartney's death may have been hidden from the public?

The rumors became so noisy that Paul McCartney himself had to reassure his fans that he was still alive. In an exclusive interview with *Life* magazine (November 7, 1969) he stated, paraphrasing Mark Twain, that "Rumors of my death have been greatly exaggerated. However, if I was dead, I'm sure I'd be the last to know." He also offered a number of explanations for the mysterious clues.

The OPD patch he wore on *Sgt. Pepper's* actually meant "Ontario Police Department"; he wore a black flower in *Magical Mystery Tour* because they had run out of red ones; it was John wearing the walrus outfit and, on *Abbey Road*, he was barefoot only because it was a hot day.

Other "clues" had similar simpler explanations: John did not say "I buried Paul" at the end of "Strawberry Fields" but, as can be clearly heard now on a clearer take of the song in *Anthology 3*, he says "cranberry sauce."

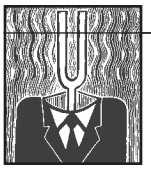
However, while it is true that most clues can be easily attributed to coincidence and wishful thinking, there are little things that must have been put there by the Beatles for some purpose, like the various "walrus" claims, the backward messages, and some other hints in the album covers. It may just be, as John Lennon said, that they only wanted to have a laugh at the expense of those critics reading cryptic messages in everything they did.

What is sadly true is the fact that Charles Manson and his "family" also believed that there were hidden messages in Beatles songs hinting at the Armageddon. He thought that the Fab Four were actually angels sent by God to reveal the secrets of the approaching apocalypse and that, in order to start the end of the world, they needed Manson's help. This is the tragically absurd reasoning he gave for the murder of Sharon Tate, the pregnant wife of film director Roman Polanski, and the guests she was hosting at their house in Hollywood.

According to R. Gary Patterson, author of the well-researched *The Walrus Was Paul* (New York: Fireside, 1996), "Perhaps the Beatles became concerned that if they admitted to planting clues they could very well be charged in some sort of conspiracy that would indirectly link them to the Manson murders. Perhaps it would be much safer to give up the hoax and deny it ever happened. This way, the Beatles would be safe from any lawsuit implicating the band members."

Perhaps. In a lighter vein, however, the rumor also helped to further boost the sale of the Beatles catalog and inspired a lot of cartoons and comedy skits, like one that was presented on *The Ed Sullivan Show* on Februrary 23, 1970, involving two angels in heaven:

> Angel One: Is there any truth to the rumor that Paul McCartney is still alive?
> Angel Two: I doubt it. Where do you think we get those groovy harp arrangements? □



Will Hack for Extraterrestrials

London's Gary McKinnon, recently arrested for computer crimes, has been described as "the world's biggest computer hacker." McKinnon reportedly caused $1 million in damages by hacking into at least ninety-two secure networks at NASA and the Pentagon over a period of twelve months (see www.thisislondon.com/news/articles/19164714?source=Evening%20Standard). American officials first thought that McKinnon's hacking was the work of Al Qaeda operatives. He is said to have deleted "critical" files from U.S. computers, stolen codes, and deleted 1,300 user accounts, among other acts of computer vandalism and larceny.

What motivated McKinnon's single-minded frenzy? He was convinced that the American government was engaged in a massive cover-up of UFOs, and set out to prove it. Andrew Edwards, an old school chum of McKinnon's, explained, "Gary told me all he was doing was looking for proof of a cover-up over UFOs." McKinnon found a whole lot of secret files. He told *The Guardian* (July 11) that he found evidence, in the U.S. Space Command network, of an "extra terrestrial [*sic*] mission." McKinnon claims, "I found a list of officers' names under the heading 'Non-Terrestrial Officers'. . . . What I think it means [*sic*] is not Earth-based. I found a list of 'fleet-to-fleet transfers' and a list of ship names. I looked them up. They weren't U.S. Navy ships. What I saw made me believe they have some kind of spaceship, off-planet." However, he said he couldn't remember much about his amazing discovery, because he was "smoking a lot of dope at the time." McKinnon never did find proof of any UFO cover-up, and now he faces a long prison sentence if convicted.

Robert Sheaffer's World Wide Web page for UFOs and other skeptical subjects is at www.debunker.com.

In a matter involving a different alleged crime, the Israeli-born spoon-bender Uri Geller (recently described by Daniel Engber in *Slate* as a "disco-era mentalist") writes in *The Telegraph* that he hypnotized Michael Jackson, at Jackson's request, to determine the truth or falsehood of the charges against him. After placing Jackson in "a hypnotic trance," to "manipulate his sub-conscious," Geller asked, "Have you ever touched a child or a young person in a way that you shouldn't?" Jackson replied: "Never. I would never do that. My friendships with children are all very beautiful," so obviously that settles *that.* "I have hypnotized many people, and it's easy to tell if they are faking," says Geller. Afterwards, Jackson told Geller "hypnosis had brought immediate benefits, of calmness and focus." Using his prodigious powers of prediction, Geller confidently promises a stunning comeback for Jackson's musical career: "The results, I promise, will be fabulous."

* * *

Yet another bizarre "explanation" for the Roswell story has surfaced, in a new book *Body Snatchers in the Desert: The Horrible Truth at the Heart of the Roswell Story* by British UFOlogist Nick Redfern (see www.coasttocoastam.com/shows/2005/06/21.html). According to Redfern, what happened in the New Mexican desert in 1947 was not a flying saucer crash, but something much more alarming: "A highly confidential, U.S. government-sanctioned program to conduct medical experiments on deformed, handicapped, disfigured, and diseased Japanese POWs, exploited as 'expendable' victims by their captors." In an interview, Redfern explains, "when the war was coming to a close, there was a particular skirmish on an island in the Pacific between the Americans and the Japanese. There was a scientific medical laboratory there which was allied to the Japanese government's notorious Unit 731. Now Unit 731 was literally the equivalent of what the Nazis were doing . . . they also brought back survivors from the Unit 731 camps. People who had been experimented on, who were due to be experimented on, even a number of dead bodies." Allegedly the U.S. military continued these inhumane experiments, and also used some of these unfortunates to test balloons and "really advanced aircraft and gliders." When one or more of these crashed in the desert, witnesses saw the emaciated, radiation-shriveled bodies of the small-stature Japanese prisoners and concluded that they had seen space aliens.

One would think that a claim so absurd, not to mention insulting to the United States and all who have served in its military, would find little support among UFOlogists—who tend to prefer extraterrestrial explanations anyway. But

a number of high-profile UFOlogists are at least tentatively supportive of Redfern's conclusions. However not everybody is climbing on the bandwagon. Stanton Friedman, who bills himself as the "Flying Saucer Physicist," quite correctly cites problems with Redfern's "history," and with his anonymous sources. Karl Pflock, author of *Roswell: Inconvenient Facts and the Will to Believe*, notes many more problems, concluding, "With the original stories [of Roswell "witnesses"] discredited, there is no foundation for what you recount." But with conspiracy stories slowly crowding out everything else from UFOlogy, it seems likely that within a few years, *Body Snatchers in the Desert* will become a major pillar of UFOlogical belief, like Philip Corso's reversed-engineered alien transistors, and the saucer base at Area 51.

The above-mentioned Twin Towers of contemporary UFOlogy, Roswell and Area 51, have recently been assaulted by no less an authority than former president Bill Clinton. On September 14, Clinton told the investors group *Finance Asia* in Hong Kong:

> Well, I don't know if you all heard this, but there was actually, when I was president in my second term, there was an anniversary observance of Roswell. Remember that? People came to Roswell, New Mexico, from all over the world. And there was also a site in Nevada where people were convinced that the government had buried a UFO and perhaps an alien deep underground because we wouldn't allow anybody to go there. And I can say now, 'cause it's now been released into the public domain. I had so many people in my own administration that were convinced that Roswell was a fraud but this place in Nevada was really serious, that there was an alien artifact there. So I actually sent somebody there to figure it out. And it was actually just a secret defense installation, alas, doing boring work that we didn't want anybody else to see.

Clinton must, of course, be part of the conspiracy, so we should expect him to deny the alien being hidden in the secret underground site.

Unfortunately, having made a reasonably clear statement scotching rumors of a secret government UFO program, Clinton went on to muddy the waters:

> The Roswell thing, I think, really was an illusion. I don't think it happened. I mean I think there are rational explanations and I did attempt to find out if there were any secret government documents that revealed things. If there were, they were concealed from me too. And if there were, well, I wouldn't be the first American president that underlings have lied to, or that career bureaucrats have waited out. But there may be some career person sitting around somewhere, hiding these dark secrets, even from elected presidents. But if so, they successfully eluded me and I'm almost embarrassed to tell you I did try to find out.

The conspiracy buffs have seized on these latter comments suggesting the possibility of a "secret government" that is hiding UFO secrets, even from the president. But Clinton was merely speaking hypothetically, and not really suggesting this was true. In any case, any government bureaucrat who really was in possession of alien artifacts would come to the Pentagon within a heartbeat, seeking additional funds and staffing for his department to study them.

One person who admits he's "confused" by the decline in sightings is none other than *E.T.*-master Steven Spielberg. According to a June 28 story at Contactmusic.com, a Web site containing stories about entertainers and celebrities, "Oscar-winning director Steven Spielberg is baffled that fewer UFO sightings are made now than were made twenty years ago—because the technology to record would-be aliens is so commonplace today." Said Spielberg, "There are millions of video cameras out there and they're picking up less videos of UFOs, alleged UFOs, than we picked up in the 1970s and 1980s. There's 150 percent more cameras, so why are we getting less from up there?" (Well, we are getting some UFO videos, but they're invariably just indistinct dots that could be almost anything. We're not getting as many clear UFO videos as we were

getting still photos, probably because videos are harder to fake.) Of course, Spielberg takes it as a given that there are alien spacecraft out there to record. Those of us who think that UFO sightings represent a mania largely driven by media reports don't find the decline of sightings to be puzzling in the least.

* * *

Elvis isn't the only popular musician to regularly come back from the dead. In Mexico, the singing actor Pedro Infante was so popular at the time of his death in a plane crash in 1957 that many refused to believe his life was over. In the decades since, Pedro Infante impersonators and impostors have abounded.

The latest dead musician to return to life is Jim Morrison of The Doors. Almost everybody thinks that Morrison died from overindulgence in drugs and alcohol while in Paris in 1971. His grave in the Pére Lachaise cemetery in Paris routinely draws much bigger crowds than any other, even though the cemetery houses some other moderately famous people like Frédéric Chopin, Molière, Georges Bizet, and Oscar Wilde. Indeed, so popular is Morrison's grave with grieving fans that a guard is posted there to keep order.

However, on May 30 it was revealed on the late-night radio talk show Coast to Coast A.M. (www.coasttocoastam.com) that Jim Morrison is alive and well and living on a ranch somewhere in southern Oregon. This astonishing information comes from photographer Gerald Pitts, who says he found "Morrison" back in 1998. "Morrison" says that he "disappeared" in Paris in 1971 to escape a conspiracy to kill him with narcotics, as they did Janis Joplin and Jimi Hendrix, because of their opposition to the Vietnam War. (In 1971, however, it would have been extremely difficult to find a rock star who was *not* opposed to the Vietnam War.) If you're undecided about this claim, you can go to Pitt's Web site, www.rodeoswest.com, and order a copy of his film about the alleged Jim

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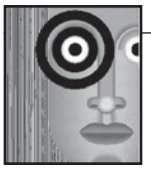
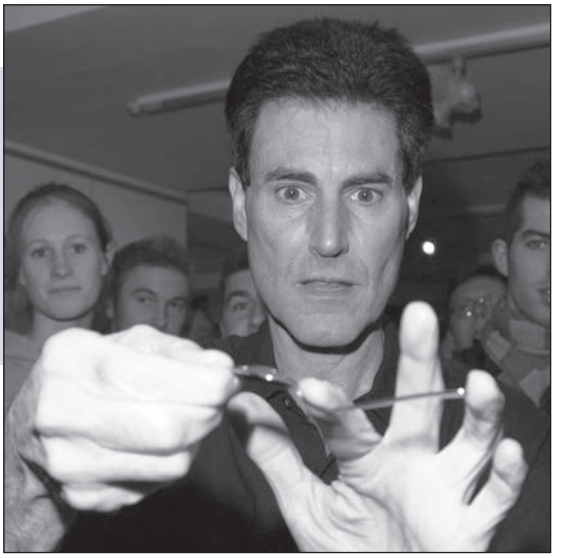


SKEPTICAL INQUIREE
BENJAMIN RADFORD

Geller Revisited

Q: What's that fellow Uri Geller up to these days? I've heard nothing about him for years. Does he still claim to stop watches and bend spoons?

—A. Pratt



A: Former Isreali paratrooper and professional cutlery contortionist Uri Geller achieved international fame and notoriety in the 1970s. Geller, who claims to be a descendant of Sigmund Freud, said he could bend spoons and activate dead watches with the incredible power of his mind. During his heyday, Geller appeared on countless television and radio programs, garnering thousands of adherents as well as two dozen articles and mentions in the SKEPTICAL INQUIRER.

If Geller was fond of the limelight, he was also fond of suing his critics, notably James Randi and the Committee for the Scientific Investigation of Claims of the Paranormal. Whether or not Geller actually has the power he claims, magicians such as Randi have been able to duplicate all of Geller's feats. As Randi famously quipped, "If Uri's using his mind to bend spoons, he's doing it the hard way."

Though Geller has yet to reclaim the prominence he once had, he has parlayed his fame into other areas. In 1977 he laid his golden pipes on the world, issuing a self-titled music album. Containing eleven tracks with titles such as "Come on Love," "Velvet Space," "Beyond Imagination," and "I Cannot Answer You," the CD was largely ignored at the time but was inexplicably reissued in 2000. One Amazon.com reviewer wrote that "Very, very rarely does a recording come along without any merit whatsoever, but Uri Geller achieves this position with stunning ease. It is 'bad' music that is genuinely awful and unlistenable and shouldn't be purchased by even the most hardcore purveyor of 'tacky' music."

Geller has continued to trade on his past, issuing over a dozen books as well as his Mind Power Kit (complete with a "power crystal" and the mistaken claim that people only use ten percent of their brains—see my special report in the March 1999 SKEPTICAL INQUIRER). In 1999, he published a novel, *Ella*, about a young British girl who, to her amazement, begins developing mysterious telepathic and psychokinetic powers.

Geller kept his name in the news over the past few years, not with any spoon bending or timepiece tampering but because of his friendship with (and vigorous defense of) Michael Jackson. Geller was convinced of Jackson's innocence because, Geller said, he hypnotized Jackson and asked him if he had ever molested children. Jackson told him no. That was good enough for Geller, who then instructed Jackson to forget that he had asked. Geller's prediction was vindicated with Jackson's acquittal, and Geller is certain that Jackson's career will be revived, stronger than ever. As he told London's *Daily Telegraph* on June 18, 2005, "This comeback of his is going to be the most dramatic ever seen in showbiz, more seismic than Elvis Presley's return from the U.S. Army. In fact, the only thing that could beat this would be for Elvis to come back from the dead." So stay tuned for the earth-shaking resurrection of either Elvis Presley or Michael Jackson's career.

Geller, who lives in London, spends much of his time writing, lecturing, and doing charity work such as helping terminally ill children. One of Geller's latest endeavors is a Psychic Museum in York, which he cofounded in 2005 with astrologer Jonathan Cainer. Visitors are led in groups of twelve or fewer through "mind-opening experiments, providing a personal experience of psychic power and potential." Exhibits and demonstrations include dowsing, psychometry, auras and energy fields, remote viewing, psychokinesis, and telepathy. According to Geller, "What's happening around the world now is that people are beginning to validate psychic phenomena. . . . It does work, otherwise people wouldn't be interested in it." □

Ask the Skeptic

Heard about some dubious paranormal or fringe-science claim? Ask the skeptic! Submissions can be sent to: **The Skeptical Inquiree, Skeptical Inquirer, P.O. Box 703, Amherst NY 14226 (or bradford@centerforinquiry.net).** Not all queries can be answered, and submissions may be edited for clarity and length.

This article, the first of a three-part series, marks the first return to our pages by Martin Gardner since he retired his Notes of a Fringe-Watcher column, which ran in every issue of the SKEPTICAL INQUIRER from Summer 1983 through January/February 2002. — Editor

The Memory Wars

Part 1

It was a tragic mental health scandal: accusations resulting from supposedly long-repressed memories of childhood sexual abuse brought to light by self-deluded therapists and questionable and suggestive techniques such as hypnotism. The false memory wars, which raged throughout the late 1980s and early 1990s, are slowly subsiding, but they are far from over.

MARTIN GARDNER

In the late 1980s and early 1990s the greatest mental health scandal in North America took place. Thousands of families were cruelly ripped apart. All over the United States and Canada, previously loving adult daughters suddenly accused their fathers or other close relatives of sexually molesting them when they were young. A raft of bewildered, stricken fathers were sent to prison, some for life, by poorly informed judges and jurors. Their harsh decisions were in response to the tearful testimonies of women, most of them middle-aged, who had become convinced by a psychiatrist or social worker that they were the victims of previously forgotten pedophilia.

On what grounds were these terrible accusations made?

They were (supposedly) long-repressed memories of childhood sexual abuse brought to light by self-deluded therapists using powerful suggestive techniques such as hypnotism, doses of sodium amytal (truth serum), guided imagery, dream analysis, and other dubious methods.

Elizabeth Loftus testifies for the defense in the Paul Shanley child abuse trial in February 2005. REUTERS/Jodi Hilton/Pool [Photo via NewsCom]

Of all such techniques the most worthless is hypnotism. Mesmerized patients are in a curious, little-understood state of extreme suggestibility and compliance. They will quickly pick up subtle cues about what a hypnotist wants them to say, and then say it. The notion that under hypnosis one's unconscious takes over to dredge up honest and accurate memories of a distant past event is one of the most persistent myths of psychology. There simply is no known way, short of confirming evidence, to distinguish true from false memories aroused by hypnotism or any other technique. After many sessions with a sincere but misguided therapist, false memories can become so vivid and so entrenched in a patient's mind that they will last a lifetime.

An early leader in debunking the belief that recollections of childhood traumas can be repressed for decades is the distinguished experimental psychologist Elizabeth Loftus, a professor at the University of California, at Irvine. She was awarded the prestigious $200,000 Gramemeyer Award for Psychology given annually by the University of Louisville, and also elected to the National Academy of Sciences. Her passionate book *The Myth of Repressed Memory*, written with Katherine Ketcham, has become a classic treatise on what is called the false memory syndrome (FMS). See also her article "Creating False Memories," in *Scientific American* (Vol. 277, No. 3, 1997).

Another influential and tireless crusader against FMS is educator Pamela Freyd. In 1992 she established the nonprofit FMS Foundation after she and her husband Peter were falsely accused by their daughter of sexually molesting her when she was a child. Freyd continues to edit the Foundation's bimonthly newsletter, and provides information and moral support to wrongly accused parents. By 1992 more than ten thousand distressed parents had contacted the FMS Foundation for advice on how to cope with a son or daughter's charges. Today dozens of Web sites carry on the fight against FMS.

Over the past twenty years hundreds of papers and dozens of excellent books have shed light on the FMS epidemic. In addition to Loftus's book I reluctantly limit my list to three others: Eleanor Goldstein's *Confabulations: Creating False Memories, Destroying Families*; Mark Pendergrast's *Victims of Memory: Incest Accusations and Shattered Lives*; and Frederic Crews's *The Memory Wars: Freud's Legacy in Dispute*. See also three eye-opening articles on "Recovered Memory Therapy and False Memory Syndrome," in *The Skeptic's Encyclopedia of Pseudoscience* (Vol. 2), edited by Michael Shermer. Psychiatrist John Hochman's article should be read by every attorney who defends a victim of the FMS. Here is his final paragraph:

> Meanwhile, there is a large FMS subculture consisting of women convinced that their "recovered memories" are accurate, therapists keeping busy doing RMT [Repressed Memory Therapy], and of authors on the "recovery" lecture and talk show circuits. In addition, there are some vocal fringes of the feminist movement that cherish RMT since it is "proof" that men are dangerous and rotten, unless proven otherwise. Skeptical challenges to RMT are met by emotional rejoinders that critics are front groups for perpetrators, and make the ridiculous analogy that "some people even say the Holocaust did not happen." RMT will eventually disappear, but it will take time.

In 2001 the FMS Foundation sent a survey questionnaire to 4,400 persons who had contacted the Foundation for advice. An overwhelming number of the accusers (99 percent) were white, 93 percent were women, 86 percent were undergoing mental therapy, and 82 percent later accused their fathers of incest when they were children. Ninety-two percent said the recovery of repressed memories was the basis of their accusations.

The number of charges peaked in 1991–1992, which accounts for 34 percent of the accusations, then the rate slowly declined. By 1999–2000 the number was down to .02 percent. The decline prompted psychiatrist Paul McHugh of Johns Hopkins School of Medicine to write an optimistic article, "The End of a Delusion: The Psychiatric Memory Wars Are Over," in the *The Weekly Standard* (May 26, 2003). The survey's data are analyzed and commented on in "From Refusal to Reconciliation," by McHugh, Harold Lief, Pamela Freyd, and Janet Fetkewicz, *The Journal of Nervous and Mental Disease* (August 2004).

For more than twenty-five years Martin Gardner wrote the Mathematical Games department of Scientific American. *He is the author of some seventy books, of which* The Annotated Alice *is best known. His latest book,* Are Universes Thicker Than Blackberries?*, consisting in part of his columns in* SKEPTICAL INQUIRER, *was published in 2004 by W. W. Norton.*

The authors of this valuable paper distinguish three stages of accusers:

1. *Refusers.* Those whose beliefs about past abuse are set in concrete. They refuse all contacts with anyone who does not share their convictions.
2. *Returners.* Those who return to their families but do not retract their charges or discuss them.
3. *Retractors.* Those who eventually realize that their awful memories are fabrications. They reconcile with their parents. The authors quote from a retractor's moving letter:

> I could not face the horrible thing I had done to my parents, so I had to believe the memories were true. Even though I got away from that horrible therapist, I could not go back to my entire extended family and say that I was temporarily insane and nothing had happened. It was easier for my self-esteem to pretend that I had been sexually abused by someone, and it was still my parents' fault because they should have protected me. [*FMSF Newsletter*, December 1998]

Many recent investigations have established how easily children can be led by inept therapists to imagine events that never happened.

In the 1990s the FMS mania also blighted the lives of hundreds of preschool teachers and daycare personnel. Small children were taken by hysterical parents to trauma therapists, convinced that their children had been sexually exploited even though at first they could not recall such abuse. After many therapy sessions, repressed memories seemed to surface.

One of the most publicized cases involving preschool children concerned the Little Rascals daycare center in Edenton, North Carolina, a town decimated by the case. On the witness stand, brainwashed little rascals told wild, unbelievable tales. They "recalled" seeing the center's co-owner, Robert Kelly, murder babies. One child said "Mr. Bob" routinely shot children into outer space. Another lad told the court that Kelly had taken a group of youngsters aboard a ship surrounded by sharks. He threw a girl overboard. Asked if the sharks had eaten her, the boy replied no, he (the boy) jumped into the water and rescued her!

Robert Kelly was convicted on ninety-nine counts of first-degree sex offenses and sentenced to twelve consecutive life terms. It was the longest sentence in North Carolina history. Kelly spent six years in prison before an appeals court released him on $200,000 bond. Kelly's friends and coworkers, including his wife and the center's cook, got harsh sentences. A 1995 television documentary, *Innocence Lost*, left no doubt that the children had confabulated.

Many recent investigations have established how easily children can be led by inept therapists to imagine events that never happened. This was amusingly demonstrated by a simple experiment reported by Daniel Goleman in his article "Studies Reflect Suggestibility of Very Young Witnesses" (*New York Times*, June 11, 1993). A boy was falsely told he had been taken to a hospital to treat a finger injured by a mousetrap. In his first interview he denied this had happened. By the eleventh interview he not only recalled the event, but added many details. In fact, only extremely rarely are memories of traumatic events repressed until years later, only then emerging under suggestive therapy. On the contrary, it is far more common for victims to try vainly to forget a traumatic incident.

There are books defending the revival of long-repressed memories. By far the worst is *The Courage to Heal*, by Ellen Bass and Laura Davis. A bestseller in 1988, its rhetoric persuaded tens of thousands of gullible women that their mental and behavior problems were caused by forgotten childhood sex abuse, and led them to seek validation through trauma therapy.

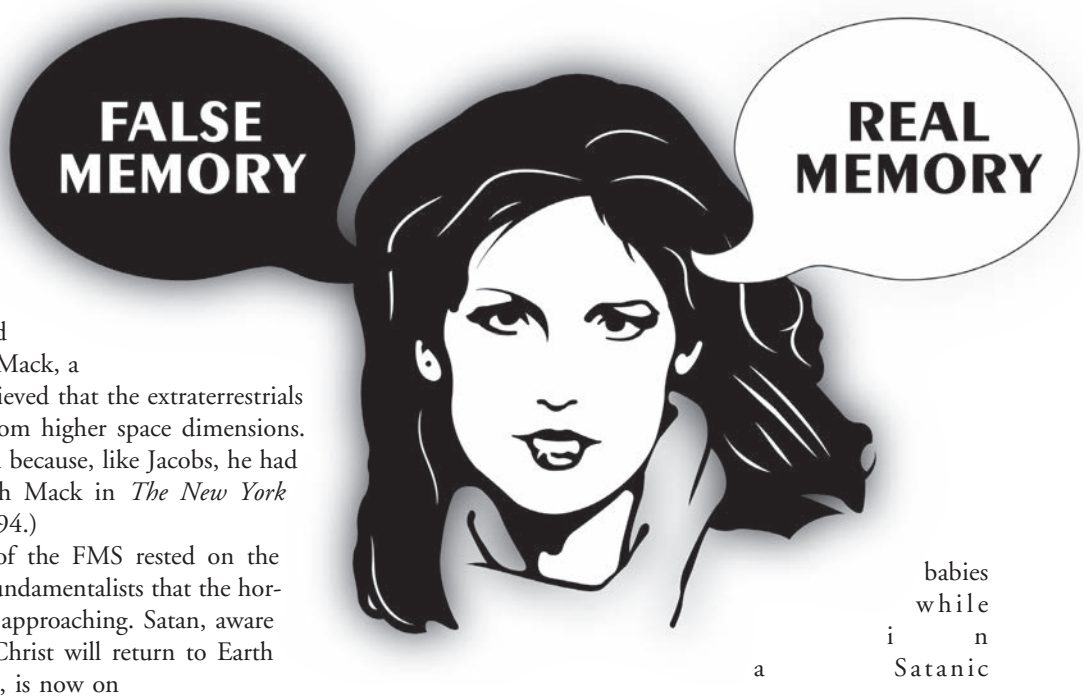
Another book, almost as bad, is *Secret Survivors*, by trauma therapist Sue Blume. "Incest is easily the greatest underlying reason why women seek therapy," she wrote. ". . . [i]t is not unreasonable that more than half of all women are survivors of childhood sexual trauma." Both statements are, of course, preposterous.

In 1989 Holly Ramona sought treatment for bulimia. After months of therapy by a family counselor, and later by a psychiatrist, she began to get memories of being raped by her father when she was an infant. Firm believers in Freudian symbols, Holly's two therapists convinced her that she disliked mayonnaise, soup, and melted cheese because they reminded her of her father's semen. She was unable to eat a banana unless it was sliced because it resembled her father's penis. Under oath she testified that her father had forced her to perform oral sex on the family dog!

Holly's father sued the two therapists. Lenore Terr, a psychiatrist who was an expert witness at the trial, told the jury that Holly's dislike of bananas, cucumbers, and pickles confirmed her recovered memories of being forced to perform oral sex on her father. Terr has been an "expert witness" on other similar trials. Basic Books carelessly published her shameful work, *Unchained Memories: True Stories of Traumatic Memories, Lost and Found*. Happily, a California court refused to buy Terr's Freudian speculations. Holly's father won a settlement of half a million dollars.

As the FMS plague spread it took on ever more bizarre forms. Quack psychiatrists began regressing patients back to traumas in their mother's wombs. One therapist uncovered memories of traumas while a patient was stuck in a fallopian tube!

Those convinced that evil aliens kidnapped and tortured



them with horrible experiments in hovering UFOs started to confirm their fears by repressed memory therapy. The most absurd of many books on recovered memories of flying-saucer abductions are by Temple University's historian David M. Jacobs, and two books by the late John E. Mack, a Harvard psychiatrist. Mack believed that the extraterrestrials are friendly, and come here from higher space dimensions. Harvard was unable to fire him because, like Jacobs, he had tenure. (See the interview with Mack in *The New York Times Magazine*, March 20, 1994.)

A more tragic application of the FMS rested on the beliefs of countless Protestant fundamentalists that the horrors of the End Times are fast approaching. Satan, aware of the Biblical prophecy that Christ will return to Earth and cast him into a lake of fire, is now on an angry rampage. He is establishing vile cults throughout the United States, Canada, and elsewhere—cults in which unspeakable rituals are performed, such as eating babies and drinking blood and urine. Dozens of shabby books about such madness have been published in spite of a thorough investigation by the FBI which concluded that, aside from the acts of pranksters, there is no evidence that Satanic cults exist here or anywhere else. In England a report by the U.K. Department of Health reached a similar conclusion after investigating eighty-four cases of alleged organized Satanic cults.

If revived memories of cannibalizing babies are true, thousands of Satanically mutilated infant bodies should be buried around the nation. Not one has been found.

If revived memories of cannibalizing babies are true, thousands of Satanically mutilated infant bodies should be buried around the nation. Not one has been found. Why? Because, fundamentalists argue, the Devil is so powerful that he is able to obliterate all such evidence! For lurid accounts of bogus memories of Satanic rituals and details about false recollections, see chapters 6 and 11 in my book *Weird Water and Fuzzy Logic*.

Among a raft of books and articles debunking the myth of Satanic cults, one of the best is Lawrence Wright's "Remembering Satan" (*The New Yorker*, May 17 and 24, 1993). It is reprinted in his book with the same title. Another excellent reference is sociologist Jeffrey Victor's book *Panic: The Creation of a Contemporary Legend*.

A third crazy spinoff from the false memory wars concerns New Age psychiatrists who believe in reincarnation. Under suggestive therapy, Shirley MacLaine has recalled numerous adventures experienced in her past colorful lives. A few incarnation therapists are even using hypnotism to retrieve "recollections" of events a patient will experience in *future* lives!

In 1991 Geraldo Rivera introduced three trauma survivors on his talk show. One woman said she had murdered forty babies while in a Satanic cult but totally forgot about it until her memories emerged during therapy. Well-known entertainers spoke on other talk shows about their long-buried memories of pedophilia. Comedienne Roseanne Barr revealed that her parents had abused her when she was three months old! Her wild tale, vigorously denied by her dumbfounded parents, made the cover of *People* magazine.

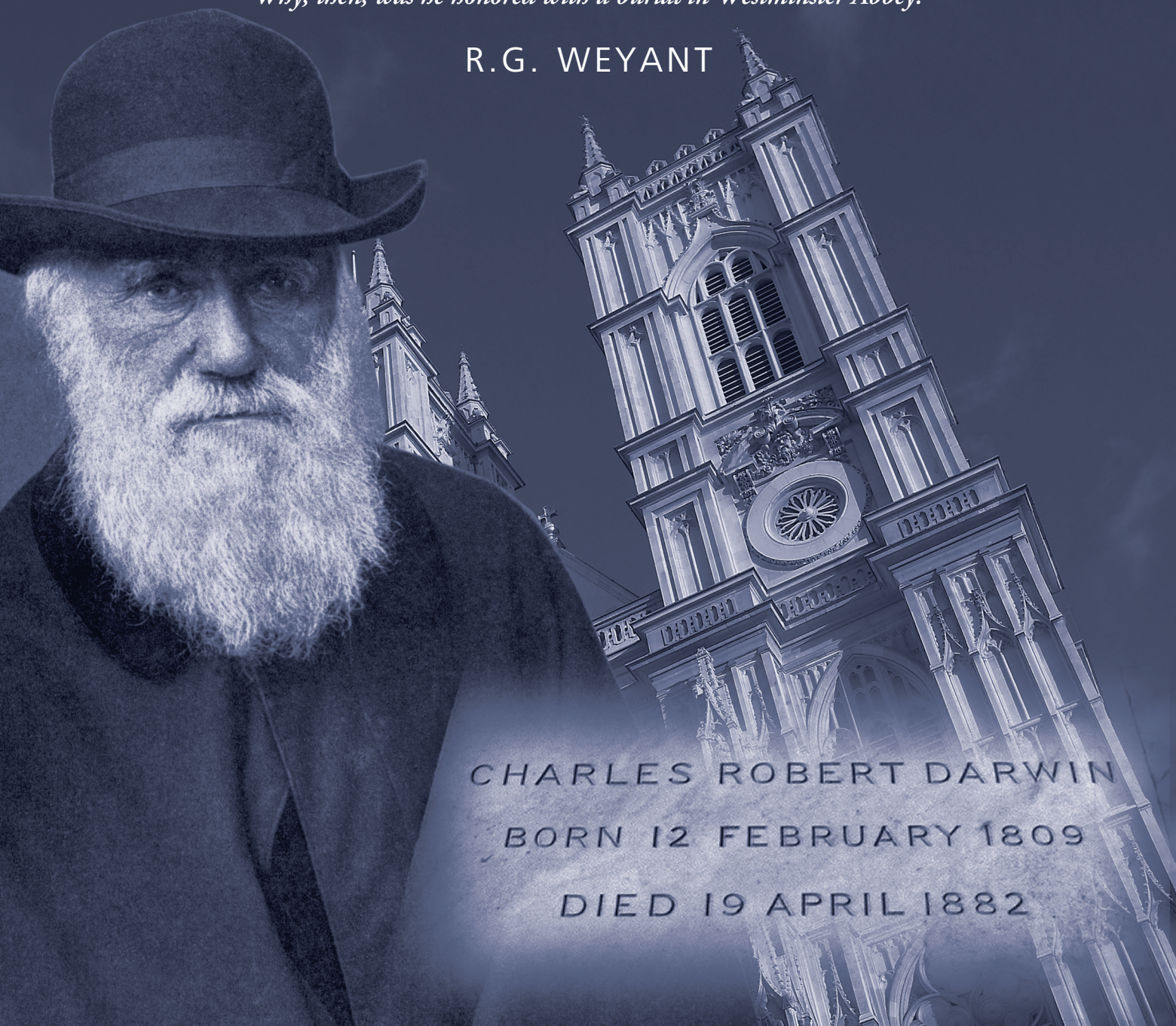
The memory wars are slowly subsiding, but they are still far from over. There are four reasons for the decline:

1. Reversals by enlightened appellate courts of harsh, undeserved sentences, many for life, of innocent

Why Did They Bury Darwin in Westminster Abbey?

Charles Darwin is often pictured not only as the author of a controversial scientific theory but also as a nonbeliever and a menace to traditional values and beliefs. Why, then, was he honored with a burial in Westminster Abbey?

R.G. WEYANT



Late in the afternoon of Wednesday, April 26, 1882, a most improbable event occurred. In a ceremony attended by hundreds of individuals, including members of Parliament, ambassadors from the diplomatic corps, scientific notables, Church of England divines, the Lord Mayor of London, and other assorted dignitaries, with two dukes, an earl, the President of the Royal Society, and scientific friends and colleagues among the pallbearers, the earthly remains of Charles Robert Darwin were interred in Westminster Abbey, close to those of such other great English scientists as Sir Isaac Newton. A hymn was specially composed and sung for the occasion, beginning with a line from the Book of Proverbs, "Happy is the man that findeth wisdom, and the man that getteth understanding."[1] It was the highest honor an admiring nation had ever paid him, but not everyone was happy about the event. Darwin was not, by anyone's standards, a believing Christian, and many thought him to be an atheist (although he consistently denied the charge), while some saw him as an agent of the devil. In his autobiography (which was not yet publicly available), Darwin had written:

> Thus disbelief crept over me at a very slow rate, but was at last complete. The rate was so slow that I felt no distress, and have never since doubted even for a single second that my conclusion was correct. I can indeed hardly see how anyone ought to wish Christianity to be true; for if so, the plain language of the text seems to show that the men who do not believe, and this would include my Father, Brother and almost all my best friends, will be everlastingly punished. And this is a damnable doctrine. (Barlow 1958)

Why, then, did they bury Darwin in Westminster Abbey? The brief answer is "because he was dead," but that, while true, clearly is not the whole story. Part of the story involves the realization that a number of Darwin's friends and fellow evolutionists—Joseph Hooker, Charles Lyell, and Alfred Russel Wallace—were also honored in the Abbey, although of those three, only Lyell was actually buried there. Lyell and Hooker were close enough to Darwin that they were the people to whom he had first revealed his ideas about natural selection before they were published and who intervened in the matter of priority between Darwin and Wallace when the latter conceived the concept independently. What lay behind this public acceptance of the Darwinians who had been reviled not many years before? As we shall see, religion, science, and politics were interwoven in this unlikely event.

It had taken some maneuvering to bring Darwin and the Abbey together. Janet Browne, in her admirable biography of Darwin, writes that: "Dying was the most political thing Darwin could have done. As Huxley and others were aware, to bury him in Westminster Abbey would celebrate both the man and the naturalistic, law-governed science that he, and each member of the Darwinian circle, had striven, in his way, to establish" (Browne 2002).

The plan was engineered principally by his cousin, Francis Galton, and his friend and colleague, Thomas Henry Huxley, who used their connections to have a petition signed by a number of parliamentarians and persuaded the appropriate church officials to approve the event. Earlier in the century, a central issue of contention was whether scientific truth should be subsidiary to theological truth—whether science should play a supporting role to religion. For many people, the ceremony in the Abbey signaled not only Darwin's importance to English society but also a kind of reconciliation between science and religion. The *Times* declared that the famous debate between Huxley and Bishop Wilberforce at the 1860 Oxford meetings of the British Association for the Advancement of Science was now "ancient history." Younger and more liberal clergy no longer viewed science as an enemy and, with the revolutions that swept across Europe in 1848 still part of living memory, there were politicians who believed it was important to show that England was modern, open to peaceful change. Moreover, by the time of Darwin's death, for most Englishmen, evolution was not just a theory—the evidence in its favor was simply overwhelming. His science had not only become respectable, it had become both popular and a source of national pride. As Adrian Desmond and James Moore have observed in their biography of Darwin, "The Abbey interment gave tangible expression to the public feeling that Darwin, in his life and work, symbolized English success in conquering nature and civilizing the globe during Victoria's long reign" (Desmond and Moore 1991).

"Dying was the most political thing Darwin could have done. As Huxley and others were aware, to bury him in Westminster Abbey would celebrate both the man and naturalistic, law-governed science . . . ."

One prominent Darwinian not honored in the Abbey was Huxley, widely known among anti-Darwinians as "the devil's disciple" and arguably England's leading scientist after Darwin's death. Recently, historians of science have downplayed the metaphor of the "warfare" of science with religion, but it is clear that warfare, both with religion and with non-Darwinian science, was exactly what Huxley saw

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himself embroiled in as he attempted to establish Darwin's views. Despite his leading role in the battle, Huxley was accorded a number of public recognitions. In 1872, he was elected Lord Rector of the University of Aberdeen, where he had been denied a professorship twenty years earlier. In 1879, he was awarded an honorary degree by Cambridge University, of which he wrote in a letter, "I shall be glorious in a red gown at Cambridge to-morrow, and hereafter look to be treated as a PERSON OF RESPECTABILITY."

Religion's grip on English thought was being loosened, although it was still more respectable in most circles to be a believer than not.

Actually, it was science that was becoming respectable, as scientific societies were formed, universities established faculties of science, and scientists took on the mantle of learned professionals. In addition to largely scientific recognitions such as the presidency of the Royal Society, in 1892, Huxley was made a member of the Privy Council, which brought with it the title "Right Honourable." Moving up from "devil's disciple" to "Right Honourable" was a big step in class-conscious English society, while he and Mrs. "devil's disciple" were received by Queen Victoria. As Adrian Desmond has remarked, "Here was final proof that he was no social pariah: science was being feted" (Desmond 1997).

Huxley's tongue-in-cheek view of his appointment was that: "The Archbishopric of Canterbury is the only object of ambition that remains to me." And no matter how respectable science had become, Canterbury was unlikely to come within his grasp.

One factor in the increased respectability of science, even evolutionary science, was mentioned by Darwin in his autobiography: "Nothing is more remarkable than the spread of scepticism or rationalism during the latter half of my life" (Barlow 1958, 95). This was just one aspect of the secularization of English society. It was in the nineteenth century that many of Europe's intellectuals, writers, and scientists lost their faith, succumbing to what A.N. Wilson called "the Victorian disease" of doubt. This painful change was poignantly expressed in Edmund Gosse's autobiographical description of the relationship between a Victorian father holding fundamentalist religious beliefs and his son who has lost his belief in religion, *Father and Son*, published in 1907. Half a century earlier, the father, Philip Henry Gosse, had published a book titled *Omphalos*, in which he attempted to explain away some of the more troubling scientific facts by arguing that God, at the time of creation, had also created various forms of fake evidence, including fossils of apparently extinct beasts that had never existed and growth rings in trees that had never grown through the time periods indicated, as well as providing Adam and Eve with superfluous navels. The nonsense of these claims weighed heavily on the young Gosse. The change in religious beliefs during the Victorian era was profound, disturbing, and deeply felt on all sides.

Nevertheless, early nineteenth-century English men and women were born into what was still, in many ways, a traditional but varied religious culture, with Anglicanism as the official state religion but including other forms of Protestantism as well as Catholicism and Judaism of varying degrees of orthodoxy. Anglicanism's official status meant that its adherents enjoyed a privileged social and legal position. Richard Altick observed, "Anglicanism was a gentleman's religion, administered by clergy of worldly tastes and ambitions largely unaffected by the spirit of Christianity" (Altick 1973, 204). But attitudes were changing; religion's grip on English thought was being loosened, although it was still more respectable in most circles to be a believer than not. As the once firm bank of faith began to wash away before the raging river of doubt and uncertainty, steps were taken to stem the tide. Religious revival meetings presenting an older, more emotional version of Christianity without any troubling rational and scientific doubts became popular later in the century. On another part of the religious spectrum, in 1864, Pope Pius IX issued a "Syllabus of Errors," designed to counteract modern, liberal elements within society.

The pope's efforts notwithstanding, a number of "secular societies" were formed, and journals such as G.L. Holyoake's *The Reasoner* provided an outlet for anticlerical writing. While such organizations could occasionally attract crowds in the thousands to hear their speakers, on the whole, a fairly small proportion of the population actually joined secular societies, and their activities tended to be confined to the larger cities. In 1866, Charles Bradlaugh started the National Secular Society, probably the largest of the secular groups; Bradlaugh also published *The National Reformer*. The titles of the two journals I just mentioned are significant, *The Reasoner* and *The National Reformer*. Reason was the method espoused by these groups and social reform was one of their aims.

The secular groups became increasingly involved in social action, such as the publication of birth-control literature and the movement to compulsory public education. Their political and social positions gradually became more and more radical, including the espousal of republicanism. Thus, the general aim of the secular societies was to replace a social purpose and morality based on scriptural concerns about the next life with one based on a belief in the abilities of human beings in this

life. Gradually, in the nineteenth century, the emphasis of the secular societies shifted from nonreligion to radical social change as the organizations included in their avowed secularism an avowed socialism. Karl Marx was replacing Tom Paine.

Still, it is interesting that so many Victorians who gave up their belief in the "wonderful fairy tale" (Beatrice Webb's phrase) of Christianity could so easily swallow the claims of such fads as phrenology, Spiritualism, the existence of fairies, and the countless quack medical beliefs that characterized the age. Furthermore, many individuals who, in the nineteenth century, found themselves defending religious belief wound up drinking from what, to earlier believers, would have seemed to be a much watered-down bottle of wine. Thus, A.N. Wilson, discussing the American philosopher/psychologist William James, has observed that, ". . . you cannot imagine many people being prepared to go into an arena full of lions for the sake of William James's God" (Wilson 1999, 331). The crucial question for conflicted nineteenth-century thinkers, according to Wilson, was, ". . . how could one be a Christian without committing intellectual suicide?" (Wilson 1999, 338).

Approximately a decade after the publication of the *Origin of Species* in 1859, most educated Englishmen, including many of the clergy, had accepted the fact of evolution. More than a few were uneasy about where the evidence and their reason were taking them, but they went nevertheless. Some scientists made the journey easier by attempting to work a deity into their thinking either at an original creation or as a guiding hand in species change. There was interest concerning whether nature reflects a coherent pattern that would indicate planning by a rational mind. Among the scientists, there was also discussion of more technical matters such as the relative importance of natural selection, as opposed to other mechanisms of change, in evolution. What was important for the new scientific ideas that were developing was that the natural world should be seen to be lawful and that science should be free of theological influences. The idea of lawfulness was extended from the natural world to the social world. As Adrian Desmond (1992, 409) observed, "Regular laws kept the querulous canaille in their place; they also prevented a capricious deity from interfering in earthly matters." Of practical importance for the acceptance of a law-governed and religion-free science was the fact that newly wealthy and influential industrialists liked the concept of law-governed change in a society free of the traditional restrictions of birth and privilege. Darwin's ideas didn't particularly frighten them.

To understand Darwin's views on religion, you have to remember that he was a scientist with the scientist's interest in evidence. For Darwin, "knowledge" was based on empirical evidence while "belief" might be the result of more emotional and less rational processes. The term *agnostic* was coined by Huxley in 1869 to provide himself with a label that would describe what he felt was his lack of *knowledge* about the existence of any sort of supernatural being. Although Huxley and Darwin were often accused of being atheists, they both consistently maintained that they were agnostics. From 1876 to the time of his death in 1882, Darwin compiled biographical notes intended for his family. After Charles's death, his son, Francis, used the notes to produce a multivolume *Life and Letters*. However, Francis allowed his mother, Emma Darwin, to delete passages that she thought might be painful to friends and family if they were made public. Some of these deleted passages related to Charles's religious beliefs. The complete handwritten text of the autobiography remained in the family and was published in full by his granddaughter, Nora Barlow, in 1958.

Although Huxley and Darwin were often accused of being atheists, they both consistently maintained that they were agnostics.

The passage I quoted earlier clearly indicates that Darwin was not a Christian. However, he recalled the feelings of awe and wonder he felt when he first encountered scenes such as the Brazilian jungle on the *Beagle* voyage and how they led him to what he called "religious sentiments." But he went on to question whether this is really evidence. For Darwin, to be an "atheist" (unlike the way we use the term today to indicate a positive *belief* that there is no god) would mean to *know* that there was no god, and that, in turn, would have required empirical evidence for the nonexistence of a god, something he believed it was not possible for science to produce. Hence, his consistent assessment of himself as an "agnostic."

Thus, there existed in Britain in the nineteenth century a continuum of closely related religious and political beliefs ranging from religious fundamentalists, who also tended to hold traditional views concerning the social importance of church and crown, through radical atheists, materialists, republicans, and revolutionaries, who would have been happy to see both church and crown eliminated from the country. Within government and aristocratic circles, there was still some abiding fear of revolution. While Darwin came from a family of freethinkers, he was moderate in his social and political views and careful about making his religious views public. Although he certainly was not a believer in Christianity, he had no wish to play the role of the village atheist, and while he was a supporter of the Reform Acts, he had no wish to overthrow the monarchy, the church, or the government. He

was concerned with public respectability, taking on the position of magistrate in Downe and contributing to a number of charities, including some that would today be termed "faith-based." Politically and socially, Darwin was more acceptable to the government and even to the church than many of his scientific contemporaries would have been.

When describing Darwin's social and religious beliefs it is tempting to recall a phrase that has been applied to other Victorian thinkers: "agnostic deist." While many of Darwin's contemporaries would have agreed with the sentiment of Karl Marx's observation that religion is the opiate of the people, they also recognized that opium has its positive uses. There was some fear that a completely secular society, one with no belief in any kind of god to hold it together, would disintegrate into anarchy and chaos. Indeed, it was feared that Western civilization as a whole might not survive the processes of secularization. In 1871, the weekly journal *Family Herald* observed that "Society must fall to pieces if Darwinism be true." It is difficult to say to what extent Darwin shared this fear, but it may have contributed to his twenty-year hesitation in publishing the *Origin*, in the persistent illnesses that kept him from entering the public debate concerning his work, and in his belief that the radical atheists were just *too* radical for comfort. As Adrian Desmond (1992, 403) noted, "Darwin would not have wanted his evolutionary views associated with this fierce radicalism; indeed, his mature Malthusian theory supported a far less destructive social program." Because of what his science showed him to be true, he may have found himself in the unenviable position of having to contribute to a larger change in thought that he wasn't sure was entirely positive.

If Darwin had known that he was to be buried in Westminster Abbey, he would probably have considered it rather amusing.

It is possible to identify at least four controversies in which the Darwinians were engaged from 1859 to the time of Darwin's death and his burial in the Abbey. First, attempting to establish science as a recognized profession; second, freeing science from theological influence; third, establishing evolution as a fact in the public mind; and fourth, winning scientists to a Darwinian view of nature and human beings. To this might be added a fifth goal of particular interest to Darwin himself—establishing his own personal reputation in science and in English thought, and in having that reputation be a respectable one. The first two of these goals were achieved quite handily. The third was largely achieved, at least with the educated public. The fourth was partially achieved in the nineteenth century but was more completely achieved in the twentieth with the merging of Darwinian evolution and Mendelian genetics. Concerning Darwin's personal reputation, the Abbey honors testify to that achievement.

And what would Charles Darwin, who expected to be buried next to his brother, Erasmus, in the family plot in the churchyard in Downe, have thought of the whole Westminster Abbey affair? Michael White and John Gribbin (1996, 279) have speculated:

> If Darwin had known that he was to be buried in Westminster Abbey, he would probably have considered it rather amusing, caring as little as he did for such man-made hierarchies and even less for the importance of what was to happen to his body after his mind and personality ceased to exist. What would have been far more important to him would have been the knowledge that his work had survived him, that he was absolutely right about evolution and that future scientific discoveries would further validate his work, that his theory would stand as one of the great achievements of intellectual endeavour and would be his lasting epitaph.

What many people felt was needed was an indication that English society was open to new ideas, to change—but respectable, not radical, change. While Darwin was never indifferent about his personal reputation, it is likely that the wedding of Charles Darwin's remains with the religious and political stature of Westminster Abbey was of more importance for Darwin's science, for the Abbey, and for the state than it would have been for the man himself. It was a statement of some lasting significance. It was, in Adrian Desmond's words (1997, 139), "The aristocracies of birth, spirit, and intellect were proclaiming their faith in evolution as a preserver of the social order and a provider of future glory." With some help from his friends, Charles Darwin's ideas had become the ideas of his time and culture, and it was convenient for both church and state to recognize that fact. And that's the major reason why Darwin was buried in Westminster Abbey.

Note

1. For a detailed description of the Abbey ceremony, see: Moore, James R. 1982. Charles Darwin lies in Westminster Abbey. *Biological Journal of the Linnean Society*. 17: 97–113.

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Paranormal Beliefs

An Analysis of College Students

This study examines the paranormal beliefs of college students along thirteen dimensions relating to age, area of study, and education level. Are college students more apt to believe in the paranormal? Does education level have an effect on beliefs?

BRYAN FARHA and GARY STEWARD JR.

A Gallup Poll (2001) revealed that 54 percent of Americans believe in psychics, 50 percent in extrasensory perception (ESP), 42 percent in haunted houses, 41 percent in demonic possession, 38 percent in ghosts, 36 percent in telepathy, 33 percent in extraterrestrial visitation, 32 percent in clairvoyance, and 28 percent in communication with the dead. Another survey revealed that 20 percent of Americans believe they have seen angels (Scripps Howard 2002). Outside the United States, the Czech Republic has a long history of belief in the paranormal, resulting in parapsychological research in the Soviet Union and alternative healing in Bulgaria (Mahner 2002). Former Soviet President Boris Yeltsin periodically relied on astrology—as did First Lady Nancy Reagan.

Why such strong beliefs? The media are likely responsible for some people's beliefs in ESP, astrology, and alien abductions, to name but a few. Media portrayal of the paranormal is often unchallenged, which contributes to the public's lack of skepticism (Frazier 2001). Popular talk-show hosts Larry King and Montel Williams are primary sources of uncritical paranormal reporting. Mooney (2003, 37) points out that Larry King " . . .betrays virtually all journalistic standards" on the subject of paranormal phenomena. Peterson (1995) states that it's more fun to believe in the paranormal and claims that most people don't want their enthusiasm for the paranormal stymied.

Errors in human cognition can also account for belief in the paranormal. Mole (2002) argues that people selectively confirm their most comforting biases. From a philosophical/psychological perspective, Shermer (2003, 63) suggests, "smart people believe weird things because they are skilled at defending beliefs they arrived at for non-smart reasons." He also points out that logic, reasoning, and evidence have little to do with people's beliefs.

Some have found that level of intelligence may be related to paranormal beliefs. Killeen and Wildman (1974) found that high-school seniors who scored higher on I.Q. tests were less superstitious than students with lower I.Q. scores. Messer and Griggs (1989) found that as beliefs increase, classroom grades decrease. Lester (2000) postulates that hanging on to beliefs has a survival value. He states, "beliefs are not supposed to change easily or simply in response to disconfirming evidence. If they did, they would be virtually useless as tools for survival." Markovsky and Thye (2001) include a social dimension, suggesting that such beliefs are transmitted in groups by passive social influence.

Higher education is in the business of promulgating critical thinking and skepticism, and thus, imperviousness to paranormal belief. However, the word *higher* in "higher education" may soon need a new definition, according to some. A few highlights of "higher" education reveal that: In 1987, Temple University created the Center for Frontier Science, whose periodical has covered homeopathy, tarot-card reading, ESP, psychokinesis, precognition, and UFOs (Gardner 1998); the Division of Personality Studies in the University of Virginia's Department of Psychiatric Medicine has a Web site indicating that their unit investigates "apparent" paranormal phenomena. Moreover, there is an investigative emphasis on children who claim to remember previous lives, near-death experiences, out-of-body experiences, apparitions and after-death communications, and deathbed visions (University of Virginia 2005).

Another example is Sweden's Lund University, which appointed a professor of parapsychology, hypnology, and clairvoyance (CNN.com 2003). Edinburgh University in Scotland and Utrecht University in the Netherlands already have chairs in parapsychology. Furthermore, the Accrediting Commission of Career Schools and Colleges of Technology (recognized by the U.S. Department of Education) granted The Astrological Institute (Scottsdale, Arizona) national accreditation to offer a diploma in astrology and psychology (Farha 2002). In addition, Canada's third largest college—York University—had a chiropractic doctoral degree "approved in principle" before the proposal was narrowly overturned (De Robertis 2002). As a final example, Florida State University recently vetoed a chiropractic program (Martinez 2005) as well.

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The Gallup Survey

The 2001 Gallup Poll of paranormal beliefs revealed the following: first, younger Americans are far more likely to believe in haunted houses, witches, ghosts, extraterrestrial visitation, and clairvoyance than older Americans. Second, older Americans are somewhat more likely to believe in demonic possession than younger Americans. In terms of gender, more women than men believe in ghosts and that people can communicate with the dead. Men are more likely to believe that extraterrestrials have visited Earth. The poll showed that 55 percent of Americans who place a daily priority on religion believe in demonic possession, compared to 14 percent of Americans who do not. Further, respondents who place great importance on religion were less likely to believe in extraterrestrial visitation than less "religious" respondents.

Belief in demonic possession, astrology, and haunted houses increases as educational level of the respondent decreases. A logical conclusion would suggest that more education and critical thinking decreases pseudoscientific or paranormal beliefs. The participants of the 2001 Gallup Poll were drawn from a random sample of the U.S. population. Our study compares the results of the 2001 Gallup Poll to a sample of college students. We assumed that higher education, as one of the few remaining bastions of critical thinking, would provide little room for pseudoscientific or paranormal beliefs.

The Study

Our survey instrument was patterned after the 2001 Gallup poll and was administered to 439 college students from metropolitan universities in the southwest central region of the United States.

The instrument included thirteen paranormal dimensions: psychic or spiritual healing, ESP, haunted houses, demonic possession, ghosts, telepathy, extraterrestrial visitation, clairvoyance, communication with the dead, astrology, witches, reincarnation, and channeling. In addition to the thirteen dimensions, we also asked participants to provide information on age, major area of study, religious affiliation, and education level (i.e., freshman, sophomore, junior, senior, graduate student).

For each of the dimensions of paranormal belief, participants were asked to circle either "Believe," "Not Sure," or "Don't Believe." We condensed the areas of study into seven broad categories: Sciences, Social Sciences, Education, Fine Arts, Business, Humanities, and Undecided.

Paranormal Dimension	Believe %	Not Sure %	Don't Believe %
Psychic or spiritual healing or the power of the human mind to heal the body	**56** (54)	**26** (19)	**18** (26)
ESP or extrasensory perception	**28** (50)	**39** (20)	**33** (27)
That houses can be haunted	**40** (42)	**25** (16)	**34** (41)
That people on this earth are sometimes possessed by the devil	**40** (41)	**28** (16)	**31** (41)
Ghosts or that spirits of dead people can come back in certain places and situations	**39** (38)	**27** (17)	**34** (44)
Telepathy, or communication between minds without using the traditional five senses	**24** (36)	**34** (26)	**42** (35)
That extraterrestrial beings have visited earth at some time in the past	**17** (33)	**34** (27)	**48** (38)
Clairvoyance, or the power of the mind to know the past and predict the future	**24** (32)	**33** (23)	**42** (45)
That people can hear from or communicate mentally with someone who has died	**16** (28)	**29** (26)	**54** (46)
Astrology, or that the position of the stars and planets can affect people's lives	**17** (28)	**26** (18)	**57** (52)
Witches	**26** (26)	**19** (15)	**55** (59)
Reincarnation, that is, the rebirth of the soul in a new body after death	**14** (25)	28 (20)	**57** (54)
Channeling, or allowing a "spirit being" to temporarily assume control of a human body during a trance	**10** (15)	**29** (21)	**61** (62)

Table 1: College student beliefs relative to Gallup Poll results (in parentheses)

Results and Discussion

Table 1 shows a summary of the results of the college students' survey in bold-faced type. For comparative purposes, the 2001 Gallup Poll results appear parenthetically. Percentages have been rounded up or down to the nearest whole number.

Generally, our sample reported less belief in the paranormal dimensions than the Gallup Poll participants, with the exception of psychic or spiritual healing (two percent higher) and ghosts (one percent higher). The most extreme difference between the Gallup Poll and our student sample is ESP. Twenty-eight percent of college students reported belief in ESP compared to 50 percent in the 2001 Gallup Poll (22 percent difference). Disparity also exists regarding the dimensions of extraterrestrial visitation (16 percent difference), telepathy (12 percent difference), communication with the dead (12 percent difference), astrology (11 percent difference), and reincarnation (11 percent difference). However, in terms of those reporting "Don't Believe" (which we argue to be indicative of skepticism), our sample reported more skepticism across only six dimensions of paranormal beliefs (ESP, telepathy, extraterrestrial visitation, communication with the dead, astrology, and reincarnation). Interestingly, Gallup Poll participants were decidedly more skeptical of psychic or spiritual healing, haunted houses, demonic possession, ghosts, clairvoyance, and witches.

Educational Level	Percentage of Believers
Freshmen	**23**
Sophomores	**26**
Juniors	**27**
Seniors	**31**
Graduate Students	**34**

Table 2: Belief by educational level

Education Level

Our results reveal a distinct pattern regarding education level: as educational level increases, belief across all thirteen paranormal dimensions increases (see table 2).

Specifically, the paranormal dimensions of ESP, haunted houses, and ghosts are consistent with this pattern (i.e., as educational level increases, the percentage of believers increases). Psychic or spiritual healing generally follows the same pattern, where nearly half of the participants across all educational levels reported belief in the phenomenon. Contrary to our prediction, an overwhelming percentage of seniors (67 percent) and graduate students (74 percent) reported belief in psychic or spiritual healing.

Demonic possession and telepathy (i.e., communication between minds without using the traditional five senses) follows the same pattern with the exception of a slight reduction of belief at the senior level. Additionally, belief in witches is consistent with the stated pattern, with the exception of a minor reduction at the junior level, followed by a consistent increase in seniors and graduate-student participants. Extraterrestrial visitation, clairvoyance, and astrology are consistent with the overall pattern through seniors, but decrease among graduate students.

Reincarnation, channeling, and spirit communication display an inconsistent pattern. Although erratic, the frequency of those reporting belief is fairly low. This may be due to the influence of a strong presence of conventional religion in the geographic region in which the data were collected. While some consider the university to be the last bastion of critical thinking, our sample reflects otherwise. Contrary to our expectations, a higher educational level does not appear to have a dampening effect on paranormal beliefs.

Gender and Age

Most paranormal dimensions reveal little difference between males and females. Females are 7 percent more likely to believe

Areas of Study	Percentage of Believers
Social Sciences	31
Education	29
Humanities	26*
Business	26*
Sciences	25
Undecided	24
Fine Arts	23*
*Denotes a low number of participants in this area of study	

Table 3: Belief by area of study

in psychic or spiritual healing and astrology—which could be viewed as consistent with cultural stereotypes of females as more nurturing and intuitive than men. Males are 7 percent more likely to believe in extraterrestrial visitation—which could be accounted for by virtue of men's interest in sciences such as astronomy and the claimed similarity between astrology and astronomy. All other dimensions showed no appreciable difference in gender.

Regarding age, all dimensions—with the exception of astrology, reincarnation, and channeling—indicate an appreciably stronger belief among those who are age twenty-three and older. Unlike the 2001 Gallup Poll, our sample did not adequately represent older participants. Therefore, we divided age into two categories: those under twenty-three years of age and those twenty-three years and older.

Area of Study

Contrary to our expectations, students in the social sciences showed stronger belief than students in all other areas of study (table 3). Interestingly, fine arts students were more skeptical across all paranormal dimensions. This may be due to the low number of reported students studying the fine arts (n=23) in our sample, or it may reflect a real difference.

Conclusion

Our study examined student beliefs among thirteen paranormal dimensions. While the overall sample reported less "belief" than the participants of the 2001 Gallup Poll, we were surprised that there was less skepticism (fewer "Don't Believe" answers) among the college sample (on only six of thirteen measures were students less skeptical). Contrary to our expectations, we found that an increase in education level is associated with an increase in the number of people reporting "belief." In other words, as people attain higher college-education levels, the likelihood of believing in paranormal dimensions increases.

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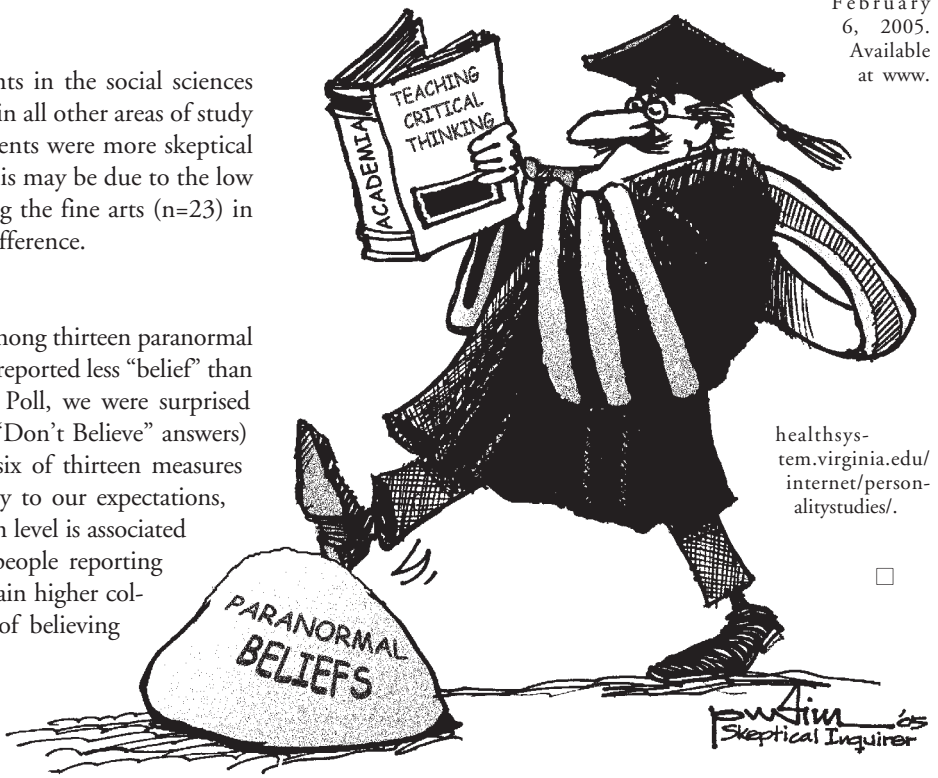

Ogopogo the Chameleon

Lake Okanagan's resident lake monster has undergone many transformations over the centuries. Will the real Ogopogo please rise up?

BENJAMIN RADFORD

When Joe Nickell and I began our search for Ogopogo, the famous monster of Lake Okanagan, in British Columbia, Canada, I had an idea of what to look for: a creature thirty to seventy feet long, with dark skin and a characteristic series of humps. Though I went in search of one monster, in a way I found three. Ogopogo seems to have several distinct incarnations: as an Indian legend, as an elusive biological beast, and as a lovable local mascot.

N'ha-a-itk of Indian Myths

Because the evidence for lake monsters rests almost entirely on ambiguous sightings, fuzzy photographs, and a lakeful of supposition, native Indian tales have been used to suggest

Figure 1. Lake Okanagan's Rattlesnake Island (Monster Island), reputed home to the Ogopogo monster. Photos and illustrations by Benjamin Radford.

historical precedence for the creatures. Some lake monsters, such as Loch Ness's Nessie and Lake Champlain's Champ, are depicted as mysterious but fundamentally friendly beasties, playful and elusive. Not Ogopogo, or at least not the Indian stories upon which it is supposedly based: that of the fearsome N'ha-a-itk.[1] The N'ha-a-itk / Ogopogo link is firmly cemented in the creature's history and lore, more closely tied to native myths than any other lake monster. Virtually all writers on the subject lump the two together, and in fact most use the terms interchangeably. For example, "the Indian name for the animal was Naitaka," writes Peter Costello in his book *In Search of Lake Monsters* (Costello 1974, 222). Loren Coleman and Jerome Clark, in *Cryptozoology A to Z*, state that "The monsters . . . are known both as Ogopogo and by their native name, Naitaka," (Coleman and Clark 1999, 183) while the definitive book on Ogopogo, *In Search of Ogopogo*, by Arlene Gaal, is subtitled "Sacred creature of the Okanagan Waters" and has a chapter titled, "Native legends of the Ogopogo."

N'ha-a-itk, variously translated as "water demon" or "lake monster,"[2] would demand a toll from travelers for safe passage near its reputed home of Rattlesnake Island (also known as Monster Island), a small rocky clot in Lake Okanagan (see figure 1). The fee was not just a bit of gold or tobacco, but a sacrifice—a live sacrifice. Hundreds of years ago, whenever Indians would venture into the lake, they brought chickens or other small animals to drop into the water. The drowned fowl would sink into the lake's depths and assure its owners a protected journey. The island's rocky shore was said to be littered with the gory remnants of passersby who did not make the sacrifices.

Indian traditions speak of Timbasket, the chief of a visiting tribe who paid a terrible price for challenging N'ha-a-itk. Historian Frank Buckland tells the story:

> Timbasket, the Indian cynic . . . declared his disbelief in the existence of the lake demon. He was told that the Westbank Indians intended to sacrifice a live dog to the water god as they passed Squally Point, but he was quite unimpressed. He knew too much to concern himself with outmoded customs. . . . [Later when crossing the lake] Timbasket defiantly chose to travel close to the rocky headland. Suddenly, the lake demon arose from his lair and whipped up the surface of the lake with his long tail. Timbasket, his family and his canoe were sucked under by a great swirl of angry water (Quoted in Moon 1977, 25).

This was *modus operandi* for N'ha-a-itk: it would use its mighty tail to lash the lake's waters into a fierce storm that would drown its victims. The white settlers apparently followed the Indians' warnings. Yet white men also lapsed at times and had to be reminded of the wrath N'ha-a-itk could wreak. In 1854 or 1855, a settler named John MacDougall is said to have neglected the sacrifice. While crossing the lake with a team of horses, a great force sucked his steeds down with a tremendous slurp. MacDougall was terrified, but even more so when he realized that his canoe, lashed to the horses, was about to be pulled down to a watery doom as well. He grabbed a knife and cut the ropes, narrowly escaping with his life.

Mary Moon, author of *Ogopogo* (1977), cautions those seeking retribution: "Anyone thinking of killing Ogopogo had better ponder the fate of the Lambton family. . . . During the first half of the fifteenth century, Sir John de Lambton killed a 'wyrm.' As a result of killing the monster, the Lambton family fell under a witch's curse: for nine generations no Lambton would die in his bed. None did. Some say the curse has pursued the Lambtons down to the 1970s." Thus black magic enters the Ogopogo story. According to Moon, "The Indians . . . looked on it as a superhuman [supernatural] entity" (Moon, 32). Other writers agree, including W. Haden Blackman, who points out that the Sushwap and Okanakane Indians "believed that it was an evil supernatural entity with great power and ill intent" (Blackman 1998, 71).

N'ha-a-itk's paranormal connection to the elements is perhaps the strongest of any lake monster. Not only does N'ha-a-itk seem to have supernatural control over the lake's waters, it also commands aerial forces as well: "the Indians said no boat could possibly land [on Rattlesnake Island], for the monster would cause a strong wind to blow and baffle the attempt. . . . the monster was something more than an amphibian. It was always in some way connected with high winds. . . ." (Moon 1977, 32).

What manner of monster is this? The power to summon storms and create whirlpools? Witch curses? (Frankly, not dying in one's own bed doesn't seem like that terrifying a fate.) Such stories and descriptions suggest that N'ha-a-itk is a legendary disincarnate force of nature, not a corporeal creature actually living and eating, breathing and breeding, in the cold waters of Lake Okanagan.

One must be very careful about accepting native stories and legends as true accounts of actual creatures. Just because a given culture has a name for (or tells stories about) a strange or mysterious beast—be it Sasquatch or Ogopogo, dragon or leprechaun—doesn't necessarily mean that those names or stories were meant to reflect reality. This highlights a problem that folklorist Michel Meurger points out in his groundbreaking book *Lake Monster Traditions*. Meurger suggests that claiming native evidence for unknown creatures is an "old gimmick of portraying the sighter as a kind of 'noble savage,'" a process he aptly names "the scientification of folklore" (Meurger 1988, 13).

Benjamin Radford is co-author, along with Joe Nickell, of Lake Monster Mysteries*, to be published in 2006 by the University Press of Kentucky.*

Figure 2. "The Dungeon," a sea serpent lair in northeastern Newfoundland near Bonavista.

According to some traditions, Ogopogo's history dates to even before it was known as N'ha-a-itk. In fact, N'ha-a-itk was actually a murderer named Kel-Oni-Won. According to Dave Parker, a traditional First Nations storyteller, Kel-Oni-Won murdered a vulnerable old man with a club. The gods decided that the killer's punishment "was to change Kel-Oni-Won into a lake serpent, a restless creature who would forever be at the scene of the crime where he would suffer continued remorse. He was left in the custody of the beautiful Indian lake goddess and was known to the tribesmen as N'ha-a-itk; the remorseful one who must live in the lake with the company of other animals. It is said that the only animal who would tolerate his company was the rattlesnake" (Quoted in Gaal 2001, 122).

This folkloric motif—the unending punishment for the unforgivable crime—is common in many myths. The later ritual of making sacrifices (a warning to heed elders' traditions and rituals) has an analogy in other lake monster legends. For example, children living around many reputedly monster-inhabited lakes are told by their parents that if they don't behave and obey, they will be thrown into the lake, where the monster would eat them. This "boogeyman" method of social control is a common but largely unrecognized function of lake monster traditions. The origin of N'ha-a-itk, and by extension Ogopogo, is rooted in morality tales, not eyewitness descriptions of real creatures.

Celeste Ganassin, curator of education at British Columbia's Kelowna Museum, explained that for many First Nations peoples the distinction between reality and myth in their traditions was not particularly important, because the stories held a culturally specific significance that renders objective truth somewhat arbitrary. Native Indians' stories are not the White man's literal, empirical reality. In the same way that one misses the significance of an urban legend by focusing on whether it corresponds to reality (Ellis 2001, 144), one misses the importance of N'ha-a-itk by treating it as simply Ogopogo or its predecessor. The beliefs and stories served important functions, Ganassin said, and divorcing the N'ha-a-itk myths from their cultural context strips them of their value. "People pick and choose parts of the First Nations myths to fit their needs, to support whatever argument they are trying to make. They take what they want and use it to support their ideas" (Ganassin 2005). Almost invariably it is white writers, not native people, who insist that N'ha-a-itk and Ogopogo are one in the same.

It's not hard to imagine why native groups might create or perpetuate traditions about the lake. The area around Rattlesnake Island can be a cold, desolate, foreboding area. Nearby lies Squally Point, so named for the violent squalls that can quickly arise and menace boaters. As Arlene Gaal notes regarding a rock bluff across from the city of Peachland, "When you look down into the water from there, there's no bottom whatsoever. The water goes out of sight. It looks eerie. Little waves hit the caves along the rocky shore, and they make sucking sounds. The combination of what you see and hear is kind of scary" (121). There are many "cursed places" around the world, where local legend warns off savvy travelers, and where monsters are said to dwell. I encountered one such area on the coast of Newfoundland: a huge, dark, unusual sinkhole near a rocky cliff that had washed out two holes toward the ocean. It is called The Dungeon, and is said to be home to sea monsters (see figure 2).

According to Ganassin, "you can't look at a First Nations group anywhere without finding a tradition of some sort of entity in a lake they had to respect or fear. Typically they believed that some sort of spirit inhabits it. Any body of water in First Nations culture can—and often did—generate these stories to explain natural phenomena such as storms, sudden winds, and so on." Indeed, the stories of N'ha-a-itk are virtually identical to those in many other North American lakes, including Ontario and Superior. Michel Meurger, for example, tells of an 1864 account by Indian captive Nicolas Perrot, who reported "That the [lake spirit] stays at a very deep level, and has a long tail which raises great winds when it moves to go to drink; but if it wags its tail energetically it brings about violent tempests." As at Okanagan, the Indians would make live sacrifices to appease the water spirit. (For a fuller discussion, see chapter 3 in Meurger's *Lake Monster Traditions*.)

If the N'ha-a-itk story is going to be seriously suggested as supporting evidence of Ogopogo, one has to explain not only what the link is but why all the other lakes with similar traditions—not only throughout Canada but throughout the world—also supposedly have lake monsters that no one has found.[3]

Though most writers gloss over the tenuousness of the link between N'ha-a-itk stories and Ogopogo, others acknowledge it but claim that ancient Indian petroglyphs, or rock art, depict the lake monsters. Peter Costello, in his book *In Search of Lake Monsters*, writes that "The Indians have left crude drawings on stone of what is thought to be Naitaka" (Costello 1974, 220). Another researcher, Roy Mackal, states that "There are at least three crude pictographs on rocks around the lake, now in an

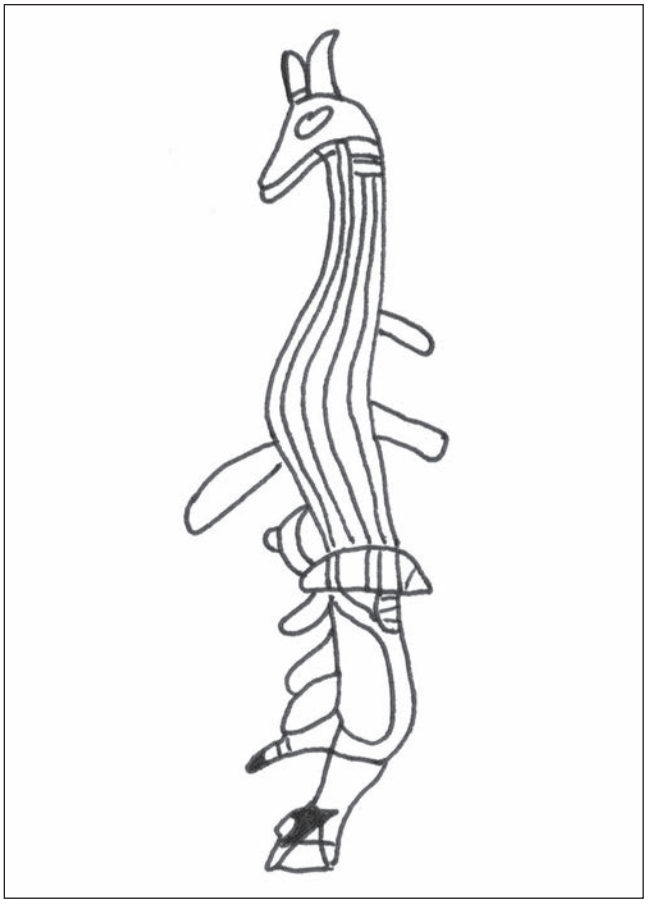

Figure 3. This Indian petroglyph, claimed to represent Lake Okanagan's Ogopogo, is actually located far from the Okanagan Valley on Vancouver Island.

extremely poor state of preservation, which may be related to an alleged lake monster" (Mackal 1980, 225).

Mackal suggests that "The relationship is tenuous and can be inferred only from the nature and location of the pictographs themselves." Yet the petroglyphs suggested as Ogopogo depictions are dubious for exactly these reasons. The petroglyph most often cited (figure 3) is in fact not from the Okanagan Valley at all, but instead from Sproat Lake, on Vancouver Island (Kirk 2005, Coles 1991). Another writer, Karl Shuker, suggests that petroglyphs dating from around 1700 B.C. might be evidence for lake monsters. One particular drawing, Shuker writes, "is a strikingly accurate depiction of the vertically undulating, elongate water monsters frequently reported from the lakes and seas of Canada—so much so that it could easily be taken to be a sketch made by one of these beasts' twentieth century eyewitnesses" (Shuker 1995, 112). Yet the petroglyph Shuker describes was found not on the shore of Lake Okanagan, nor in British Columbia, nor even in the western half of Canada, but instead over 2,000 miles away, near Peterborough, just outside of Toronto. It may still represent a monster, but its location does not suggest Ogopogo.

The criterion for inclusion seems so broad that nearly any ancient drawing found anywhere in North America—that, to anyone's eyes, might resemble some creature that could live in water—can be cited as evidence. Even desert-dwelling Indians (such as the Zuni and Pueblo) depicted horned serpents in their art and pottery. Writes Michel Meurger, "The Zunis of New Mexico have represented their serpent god of underground waters and of torrents, Kolowisi, as a horned reptile with many fins and gaping jaws." Thus there seems little basis for the reputed links between ancient art and modern monsters. "There is no true academic evidence that specifically states that First Nations people ever put down in petroglyphs the shape of N'ha-a-itk," Ganassin explains. "The pictures didn't come with captions."

Enter Ogopogo

N'ha-a-itk is clearly a supernatural entity; one writer states that "Naitaka . . . was part god, part demon." Yet Ogopogo, the lake monster we and others searched for in Lake Champlain, is presumably neither part god nor part demon; it is instead a zoological reality. This second incarnation of Ogopogo is crucial to investigators, as it moves the creatures from the mythological realm and into the zoological one.

Though the N'ha-a-itk of the Okanagan Valley Indians is long gone, it has been replaced by a decidedly less fearsome—and more biological—beast whose exact form is a matter of opinion and debate. Some writers (e.g., Jerome Clark) claim that the descriptions of Ogopogo are "strikingly similar"; Roy Mackal, in reviewing hundreds of descriptive reports, was "struck by repetitive consistency of the descriptions, almost to the point of boredom." Mackal continues: "The skin is described as dark green to green-black or brown to black and dark brown... [or] gray to blue-black or even a golden brown. Most often the skin is smooth with no scales, although the body must possess a few plates, scales, or similar structures observed by close-up viewers. . . . Most of the back is smooth, although a portion is saw-toothed, ragged-edged, or serrated. Sparse hair or hair-bristle structures are reported around the head, and in a few cases a mane or comblike structure has been observed at the back of the neck" (Mackal 1980, 231).

Furthermore, the head is said to look like that of a snake, or a sheep, or a horse, or an alligator. Or a bulldog. Sometimes it has ears or horns; other times it doesn't. A surprisingly large number of sighting simply refer to a featureless "log" that came alive, such as in the following descriptions: "They saw what they thought was a log, six feet long, floating in the water," and "It was like a great moving log, but alive, moving up and down a little in the water."

This Ogopogo is supported not by Indian myths but by photographs, sonar readings, and eyewitness reports. A film taken in 1968 by a man named Arthur Folden is considered among the best evidence, and we examined and partially recreated the film during our investigation. (Joe Nickell is tackling this Ogopogo in his accompanying article on page 16.)

For cryptozoologists like John Kirk of the British Columbia Scientific Cryptozoology Club, Ogopogo is the most likely and best-documented of lake monsters, far more so than Loch Ness's denizen. Loch Ness is a high-profile money pit, swallowing hundreds of thousands of dollars and countless hours of effort

Figure 4. A statue of Ogopogo sits along Lake Okanagan near downtown Kelowna, British Columbia.

over the last three-quarters of a century, yet yielding precious little in return. According to Kirk, "The Ogopogo phenomenon preceded that of the Loch Ness mystery. In the 1920s Ogopogo appearances were commonplace and the animal was regarded as just another member of the local fauna and not a mystery. Its reality was so strong to Okanagan Lake residents that when they built ferries to take people form Kelowna to Westbank there concern that the ferry needed to be armed with 'monster repelling devices' to ensure passenger and crew safety." Furthermore, Kirk says, "The catalogue of films and video of Ogopogo are more numerous and of better quality than anything I have personally seen at Loch Ness and I believe that several of them are very persuasive that there is a large living unknown creature inhabiting the lake" (Kirk 2005). Jerome Clark and Nancy Pear, in their book *Strange and Unexplained Happenings*, also suggest that "Despite its silly name, Ogopogo is one of the most credible of the world's lake monsters" (Clark and Pear 1995, 440).

Ogie Surfaces

A third Ogopogo exists: The regional mascot and hero, a cuddly bringer of cheer and love. Long gone are the echoes of live sacrifices, drowning deaths, and bone-strewn beaches. This is N'ha-a-itk and Ogopogo updated for modern Canada and presented by a savvy public relations department. Nicknamed Ogie, this Ogopogo is sometimes dragon-like, complete with wings and scales and an elongated body formed into the distinctive series of humps. Countless tourist items feature Ogie, including T-shirts, coffee mugs, keychains, and bumper stickers. Downtown Kelowna sports a life-size (?) Ogopogo statue near the waterfront (see figure 4), and a half-dozen books on the beast can be found in bookstores around town. The City of Kelowna's coat of arms, adopted in 1955, even features a seahorse, which, according to a city brochure, "in heraldry is the closest approximation of our Ogopogo."

The public-friendly Ogopogo can be found peering down from shelves in tourist hovels, next to snow globes and plush beavers in little red Mounties uniforms adorned with maple leaves. This Ogopogo is devoid of nasty scales or slimy skin, sheathed instead in a fuzzy and lovable countenance (see figure 5). Ogie is cute and green, often childish, and, as often as not, sporting eyelashes and a disarming smile.

A 1982 children's book by Brock Tully is typical of the scrubbed-up, reformed beast. In the book *With Hope We Can All Find Ogopogo*, a "chubby, fuzzy, cuddly little ball of fluff with a big, warm and excited smile" named Hope becomes dismayed at the complex, alienating, and confusing world of adults. Seeking solace, he wanders to the shore of Lake Okanagan, where he suddenly "saw two of the biggest, warmest, lovingest eyes he had ever seen and he felt reassured. He was further soothed when

Figure 5. Cuddly and plush Ogopogo dolls are a far cry from the creature's legendarily bloody past.

the monster belonging to the eyes spoke so gently and softly and welcomed Hope to the cove." Hope and Ogopogo developed a deep friendship: "Ogy was the most loving, forgiving, and patient living creature possible. Ogy *was* love!!" The story ends with Hope running back to his home yelling, "We are all Ogopogo!" It is *this* Ogopogo—not the murderous and fearsome N'ha-a-itk, not the dark and blobby images in home videos and photographs—that is love incarnate.[4]

Reconciling the Ogopogos

Ogopogo means different things to different people. This does not automatically relegate the beast to myth, of course: Hindus imbue cows with significance that eludes McDonald's customers, and any cat fancier will affirm that felines are exalted among animals. But the differing versions do suggest that a real understanding of Ogopogo requires a broad view.

"Ogopogo has mellowed with the passing of time," writes Arlene Gaal in her book *Ogopogo*. "Of recent years, he frolics in the water with almost impish delight, flips a flirtatious tail, and, with a sly wink, disappears into the froth to return from whence he came." This mellowing occurred rather suddenly in the 1920s. In 1924, songwriter Cumberland Clark wrote a very popular music hall song called "The Ogopogo: The Funny Fox-Trot" (Shuker 1995). The song (which whimsically claimed that Ogopogo's parentage was the result of an illicit union between an earwig and a whale) established the name of the creature. Shortly thereafter, Ogopogo sightings increased dramatically.[5] But, notes Hayden Blackman, "reported Ogopogo attacks had ceased completely, and the peoples living on the lake were beginning to view the monster in a much kinder light. As fear gave way to curiosity and excitement, accounts of encounters with 'the lake demon' became much more lighthearted" (Blackman 1998, 71).

Unless lake pollution over the past centuries has had a sedative effect on the beast, this marked change in its (their) behavior is very curious. No real-world animals exhibit such a temperamental about-face. It seems that the public's perception of Ogopogo—independent of its actions—influenced reports of the monster's behavior. Part of this transformation is surely an effort to capitalize on tourism; what tourists are going to fly in from across Canada and around the globe to seek out a murderous leviathan that may demand a blood tithe, or the family puppy?

As with N'ha-a-itk, the real question is not what Ogopogo means in some absolute or biological sense, but what Ogopogo means to the culture and age embracing it. The First Nations peoples have N'ha-a-itk; the cryptozoologists and eyewitnesses have Ogopogo; and the tourists and Okanagan Valley children have Ogie. N'ha-a-itk and Ogopogo are fundamentally amorphous, while with Ogie we finally have captured the beast, in its cultural, if not its actual, form. The creature's fame began with stories and songs of its exploits; years later those stories crystallized into (and influenced) modern reports of an actual beast; soon after that, stories and songs about the creature began to spread once again. Until and unless the beast is captured or identified, Ogopogo will surely live on: part god, part demon, and part chameleon.

Acknowledgements

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Notes

1. Though the spelling *Naitaka* is very common, I have chosen to use the more authentic spelling *N'ha-a-itk* throughout this piece, except in quotations.

2. While many writers prefer to emphasize translations of *N'ha-a-itk* that suit their agendas (such as "lake monster" and "snake in the lake"), other interpretations of the Indian word may be just as accurate but less amenable to conscription into lake monster mythos. Mary Moon gives other examples, such as "sacred creature of the water," "water god," and "lake demon."

3. For a parallel example of native stories in the Bigfoot milieu, see anthropologist Wayne Suttles' discussion in Dave Daegling's book *Bigfoot Exposed*.

4. In fact, there may be more children's books about Ogopogo than any other lake monster. Other titles include *Ogopogo: The Misunderstood Lake Monster*, by Don Levers (in which the beast heroically saves several buses of schoolchildren from drowning), and *The Legend of L'il Ogie* by Garfield Fromm.

5. Note that the increase in Ogopogo sightings was strongly linked to publicity and not other sightings. Unless the creatures frequented music halls, it is unlikely that they knew that their fame was being spread far and wide and thus decided to show themselves more often. The most likely explanation for the increased sightings is that people were more aware of the creature, were expecting to see it, and were interpreting ambiguous lake phenomena as Ogopogo even in the monster's absence. A similar spike occurred in 1981 at Lake Champlain following the publicity surrounding Sandra Mansi's photo of Champ.

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The Ethics of Investigation

The sciences have recently begun to demand the development of codes of ethics and ethical instruction for students and practitioners. Skeptical inquiry and investigation now constitute a mature science that requires the same level of ethical self-criticism and oversight as other sciences.

DAVID KOEPSELL

Aside from my day job of running the Council for Secular Humanism and sitting on the executive committee of the Center for Inquiry, I also teach on an adjunct basis at the State University of New York at Buffalo in the philosophy department. Two years ago, I began teaching research ethics. Research ethics is a relatively new but expanding field of study and pedagogy. As with other fields of professional ethics, its precepts and methodical study originate from within the profession itself, and are now coming to be formalized. In the sciences, principles such as intellectual honesty, "equipoise" (explained below), and the rather intricate nature of peer review, have developed in the culture and institutions of science to self-

regulate the profession. One question my students often pose is: "Since science is self-regulating, why do we need a formalized study of the ethics of science?" This is an excellent question. If the truth will come out eventually, why bother with the mushy, philosophical problems of ethics as applied to the sciences? The answers to this question are many and varied but all are ultimately related: we should care about the truth because discarding untruth is part of the process of science; we should strive as human beings to embody ethical principles in every area of our endeavor, including scientific research; ethical principles will advance sciences more quickly; and so on.

Recently, I had the pleasure of attending and presenting at a CFI lecture in San Diego alongside Senior Research Fellow Joe Nickell and took the opportunity to ply him for stories. Joe's adventures are always illuminating. Among the various accounts he related to me that weekend, there was a theme. The theme, it turns out, is that some investigation is done "less than ethically," while Joe strives always to pursue his investigations ethically. When I suggested that perhaps it was time for investigators of paranormal and pseudoscientific phenomena to develop or formalize their acting ethical principles, he agreed, and I began ruminating. As with research ethics and medical ethics, the case-study method seems like a good departure point for uncovering the ethical principles for investigations. Often, it is through case studies that we are able to evaluate for the first time our ingrained ethical principles. Moreover, the case-study method frees us from the epistemological problems that philosophers face when they argue about which "ethics" are correct.

If we follow the lead of scientists, I believe we can avoid the age-old issue of metaethics by simply using the methods of the sciences and ask: "What works?" Case studies, and our natural responses to the questions posed by them, more or less work. When posed with a hypothetical or actual situation involving a seeming ethical dilemma, students frequently come to similar conclusions about their resolutions following some debate, and often do so immediately. At the very least, students usually generate the critical ethical questions that need to be posed.

The case-study method is not the only manner of pursuing ethical precepts. We may also learn much by looking at the particular methods of a science or area of research and ask how they inform the ethics of that study. In this article, I will look first at the particular methods of investigation and then approach some cases to begin a general inquiry into the ethics of investigation.

An Approach from Methods of Investigation

The ethics of a branch of research may be approached according to it's own methods. This alone may not be sufficient to form a complete ethical theory for a science, but it may at least inform the values that scientists, researchers, and the public develop to pursue that research in the best possible way. In medical ethics, where the patient/doctor relationship is critical, privacy, confidentiality, and informed consent play central roles in developing appropriate ethical approaches. In the laboratory, on the other hand, where there is generally no such sort of client relationship, standards and emphasis of ethics shift accordingly.

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Equipoise

An initial standpoint of objectivity is central to the skeptical approach. In research and medical ethics, we call this standpoint "equipoise" (Macrina 2000). Equipoise means beginning one's research, investigation, or diagnosis without bias. Equipoise is essential so that the investigation can be pursued adequately, as bias can influence data acquisition. If an investigator begins acquiring data with an aim toward finding something in particular, then one is apt to discard some data, or misinterpret data, even potentially unconsciously, in order to confirm one's hypothesis. There are numerous historical examples of how a lack of equipoise can influence data collection, and has done so sometimes disastrously.

Of course, equipoise requires an attitude of non-dogmatism. The only thing we are dogmatic about as skeptics and scientists is the method of the sciences itself. This method necessarily begins with doubt, so that we begin a scientific investigation without a presupposition about its outcome. Skeptics or scientists who set out with the assumption that a particular thing is *impossible* must be open to having that assumption falsified. A dogmatic belief that a particular phenomenon is impossible is itself unscientific, because falsifiability is one of the cornerstones of scientific hypothesis. Thus, a true scientist and a good investigator begin with an objective standpoint, where he or she may have any original assumptions proven wrong by the data.

Equipoise does not mean utter agnosticism. Most scientists agree that faster-than-light travel, for instance, is impossible due to well-tested and understood laws of nature. Thus, if someone claims to have invented a faster-than-light engine for space travel, scientists are rightly skeptical. Investigators of any phenomenon should be guided in their assumptions by already well-established laws of nature. So far, the laws of nature have been helpful methods of prediction, control, and understanding of the world and its forces and ought not to be lightly cast aside. It is understandable and preferable, therefore, not to remain completely agnostic about those well-established laws. On the other hand, there have been times when old assumptions about the laws of nature have required refinement and, rarely, abandonment. Therefore, our initial skepticism about claims that contradict well-established laws of nature is understandable, but is not final when we approach a phenomenon for investigation. We cannot simply dismiss such claims, despite our skepticism, and must therefore ensure our equipoise when investigating claims that seem counterintuitive or supernatural.

It is sometimes difficult to suspend beliefs where they are based on well-established and verified experiment or experience.

As skeptics, we may, at a certain point, be tempted to simply decide that a question is resolved, that some paranormal or apparently pseudoscientific claim is dismissed and needs no further investigation. But if we are truly empiricists, it is a matter of intellectual honesty to admit that our assumptions about the lack of validity of these claims may *yet* be proven unjustified. If our hypothesis that there is no extrasensory perception is indeed scientific, then it too must be falsifiable. If not, then it is a dogmatic belief no better than a religious one.

Equipoise means that we must continue to investigate claims of the paranormal and pseudoscience as long as new claims emerge. We must never set aside our equipoise and conclude that our investigations have settled the questions posed by such claims. Our investigation must be thorough, and not dismissive or superficial. If our assumptions drive our methods, we do a disservice to the methods of science, which demand that all natural potential causes for a phenomenon be ruled out before turning to supernatural possibilities, but that once all those natural potential causes are ruled out, we should consider extraordinary potential explanations, no matter our initial assumptions.

This is a matter of ethics, because it involves both the integrity of the methods we claim to defend and our personal integrity in adhering to those methods. A lack of equipoise threatens those methods and the integrity of the institutions of science themselves.

Fidelity

The truth about a given phenomenon is the goal of all investigation. A commitment, therefore, by an investigator to the truth in all matters must be utmost. This commitment to truth should be an abiding principle as the *goal* of all investigations, even where, as discussed below, it may not always be a part of the process of every aspect of an individual investigation. This principle ought to be obvious, but there may be temporary, ideological, or egotistical reasons why the truth may lose out to other goals or motives.

It may be tempting to pursue an investigation for reasons other than merely exposing or discovering the truth, and conflicting goals can interfere with good investigation. If, for instance, one is motivated by a desire to prove a particular point, to show that one is smarter than a rival, or to debunk an enemy, then the investigation's integrity may be jeopardized. This means there can be no other agenda when pursuing an investigation other than uncovering the truth; also that, should one fail to uncover the truth, and if the investigation is unable to explain a phenomenon or eliminate certain possible explanations, that should be noted in the summation, even if it leaves the summation open-ended. One cannot assume that the paranormal explanation is ruled out if no alternative explanation is forthcoming. Truth-telling in general leads to the next principle: informed consent.

Informed Consent

The next principle that research and medical ethicists agree is necessary and part of the proper methods of research and practice is that of informed consent. In medical and other scientific research, the subject of a study should not be used as a means to an end without recognizing that he or she is being so used, and consenting to being used that way. There are a number of historical examples where a lack of informed consent violated personal rights and the integrity of the institutions of science itself. In the Tuskegee syphilis study, for example, poor, undereducated black sharecroppers were denied treatment for syphilis. Informed consent is a thorny issue in both scientific investigation and skeptical inquiry. Before looking at its shortcomings and pitfalls, let's explore its virtues.

When an experiment involves the use of conscious, mature subjects, one should generally inform the subjects as fully as possible about their role in the experiment, and the nature of all known side effects, as well as the fact that there are no guarantees that the experimental technique will be of any benefit. Informed consent has been a bedrock of medical and research ethics since the Nuremberg code, despite occasional and notable lapses. It is based upon the notion that human autonomy is a fundamental ethical value. Yet there are complications when conducting skeptical investigations that sometimes called for deceit as the only means of uncovering a fraud.

Joe Nickell (1988), for example, describes his various undercover activities researching the spiritualist community of Camp Chesterfield, Indiana. Surely, when one adopts a pseudonym and invents an identity to conceal a potentially well-recognized public persona, the subject of the investigation lacks fully informed consent to be investigated. But such an approach may often be necessary, especially for an investigator like Nickell, who is so well-known in the paranormal community. And this may be the key to how informed consent is to be applied in investigation. Where the intent of the investigation is to uncover an attempt at defrauding innocent people, a little trickery may be justifiable. It is certainly often necessary because the subject would not otherwise consent to have his deceit revealed, and the greater harm of the subject's deceit may often justify the lesser deceit involved in exposing trickery.

On the other hand, where the subject of an investigation is himself innocent and mistaken about the cause of a phenomenon, rather than actively and intentionally deceiving others, informed consent should be easier to obtain without threatening the investigation, and is the more prudent, ethical approach. Of course, there may still be exceptions.

Take, for example, Jim Alcock's description of an investigation of a Chinese girl who allegedly read notes stuck in her ears. Eighteen years ago, Alcock went with a delegation to China to investigate, among other things, the claims of Qi Gong masters, Chinese traditional medicine, and this girl, who was being paraded around because of her supposed psychic abilities. Investigator James Randi accompanied Alcock, and the two had seen videotape of the girl's performance, which involved the use of two sheets of rice paper, only one of which contained the original handwritten note given by an audience member. In challenging the girl to repeat the performance, Randi chose not to simply perform the trick himself, or to explain how the trick was being conducted, but rather

to suggest to the girl that a different colored sheet of paper be used. She refused the offer. Her trick was thus exposed: She had been palming the note she allegedly "read" while a blank sheet remained in her ear. An article in the SKEPTICAL INQUIRER followed, and people were no longer deceived (Alcock et al. 1988). But eighteen years later, Alcock wonders what happened to this girl. The governmental authorities who had been involved in promoting the girl's abilities were apparently not pleased by being deceived, and the girl's whereabouts could not be confirmed. She may even have been sent to jail. In this case, informed consent was given, but it raises the possibility of another ethical principle for investigations: a duty of compassion.

Compassion

Finally, it may well be that the result of an investigation is that a life is ruined, a person is jailed, or worse. Considering this, the investigator should be careful in choosing how he exposes the fraud, if fraud is discovered. And he must balance the weight of the potential consequences to the perpetrator against the likely benefit to the public at large. As with all pursuits, compassion is generally a good guiding principle for just behavior. If one need not harm someone else, one shouldn't. If harm is necessarily a consequence of doing a higher good, then the option involving the least harm should be chosen. Any other approach may be vindictive or cruel. An investigator, using the principles above, must be guided by compassion, recognizing that the subjects of his or her investigations are ultimately people and that lives may be at stake on either side of the equation. Compassion, as a guiding principle, is a good measure in science.

Conclusion

In sum, there is plenty of ripe territory for discussion of ethics in investigations and the above principles are only a sketch. Moreover, there are many case studies that could be considered and the brief ones above are only a start. I would like to see a continuing series of case studies and continued efforts by investigators to formalize a system of ethical principles for investigation. As with scientific studies in other fields, a formalized professional ethic leads to greater confidence in the science and its conclusions and provides greater incentive for self-reflections by its practitioners. Hopefully, the SKEPTICAL INQUIRER will solicit and publish occasional case studies in ethical issues from its fine stock of qualified investigators in the future.

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PLANET X AND THE ISSUE OF DEFINITIONS IN SCIENCE
Continued from page 20

according to a recent *New York Times* article.

Why does all of this matter, and what does it tell us about science? According to some people, for example Mark V. Sykes (quoted in the *Times*) "the kinds of questions we would ask about the object would be planetlike questions [if we thought of it as a planet]." Really? It seems clear that this is a case of getting stuck on the alleged importance of sharp definitions, something that philosophers such as Ludwig Wittgenstein have long warned people to stay away from.

According to Wittgenstein, many interesting concepts (such as the deceptively simple one of "game") do not admit of clear-cut definitions based on a small set of necessary and sufficient conditions. Is there a size for a non-stellar body below which it ought to be thought of as a planetoid and above which it becomes a planet? For that matter, not even the distinction between stars and planets is quite as neat as most people think: often, one test is whether the body produces more energy on its own than it receives from outside. But by that criterion, Jupiter qualifies as a quasi-star (though it doesn't have nuclear fusion reactions going on at its core—then again, neither do black dwarfs or neutron stars).

Wittgenstein's point was that often it doesn't serve much purpose to get hung up on precise definitions, something that a lot of scientifically minded people have an ingrained tendency to do. How many times have you heard a scientist claiming that "if we can't agree on a definition, then we don't know what we are talking about"? Turns out that we do know what we are talking about, and that definitions often (though not always, of course) hamper rather than help progress.

For example, it is hard to fathom what Sykes had in mind when he said to the *Times* reporter that one would ask "planetlike" questions in some instances but not others. On the other hand, Sykes himself goes on in the same interview to suggest a very interesting question: why does Pluto, and even more so Xena, have such a skewed orbit? But one can pose the question regardless of whether one thinks of Pluto and Xena as planets or planetoids!

Science is littered by equally useless, and sometimes downright harmful, debates. In my own field of evolutionary biology, emotions have run high for decades on the "crucial" question of what a biological species is, while at the same time plenty of researchers have conducted brilliant studies on individual species and on the process of speciation, apparently entirely unencumbered by the lack of a universally-agreed-upon definition of what species are (for more on this, see my recent article in *Philosophy Now*, issue 50, 2005).

Let us all take a hint from a philosopher, once in a while, and beware of Wittgenstein's warning: "Philosophy is a

What 'They' Don't Want You to Know

An Analysis of Kevin Trudeau's Natural Cures Infomercial

Kevin Trudeau's book, Natural Cures "They" Don't Want You to Know About, *has spent months on the best-seller lists and has been heavily promoted in Trudeau's ubiquitous infomercials. But just what is Trudeau's rhetoric, and how accurate are his claims?*

STEPHEN BARRETT

In September 2004, after having been charged repeatedly with false advertising, infomercial marketer Kevin Trudeau became bound by an FTC consent agreement under which he agreed to pay a $2 million penalty and be banned from appearing in, producing, or disseminating future infomercials that advertise any type of product, service, or program to the public, except for "truthful infomercials for books, newsletters, and other informational publications." An FTC official stated that the ban was "meant to shut down an infomercial empire that has misled American consumers for years." Around the time that the consent order was signed, Trudeau began flooding the airwaves with a thirty-minute infomercial for a book called *Natural Cures*

Image captures courtesy of Tom Flynn

"They" Don't Want You to Know About (see review on page 57). Although the infomercial suggested that the book would make specific recommendations for specific problems, it actually did not do this. Here are excerpts from a transcript of the infomercial, with my comments (boldfaced and in brackets).

PAT MATTHEWS: I'm Pat Matthews. Welcome to a very special edition of *A Closer Look*. Today our guest is Kevin Trudeau. Kevin has written a book; it's entitled *Natural Cures "They" Don't Want You to Know About*. . . . Tell us a little bit about who "they" are. I think that's the first question.

KEVIN TRUDEAU: "They," in this case, are really several government agencies—U.S. government agencies—and other agencies around the world, and the drug industry primarily, but also it involves the food industry. There are certain groups, including government agencies, as well as the food industry, the drug industry, and even some news and television and newspaper organizations that don't want people to know about cures for diseases that are all-natural because people can't make money on all-natural cures. So there are in fact cures for cancer. There are cures for diabetes. There are cures for Chronic Fatigue Syndrome. There are cures—all-natural cures—for Attention Deficit Disorder, migraine headaches. . . . [**Trudeau attempts to gain sympathy and credibility by portraying himself as an underdog.**]

MATTHEWS: Now wait a second. Attention Deficit Disorder. Now, how can that be lumped in with all of these physical maladies?

TRUDEAU: Well, when you look at the way the system works today, you have the Food and Drug Administration—the FDA—and you have the drug industry. They really work in tandem. Unfortunately, there's an unholy alliance there. People don't know that the majority of commissioners of the FDA . . . go to work directly for the drug companies upon leaving the FDA and are paid millions and millions and millions of dollars. Now in any other format, that would be called bribery; that would be called a conflict of interest; that would be called payoffs. That's exactly what's happening right now. So what has occurred is the Food and Drug Administration is really working in tandem with the drug industry to protect their profits.

MATTHEWS: There are natural remedies for psychological/neurological disorders or diseases, which they're calling them now, right?

TRUDEAU: Absolutely, 100 percent. There are absolute natural cures for these problems. They don't cost a lot. The problem is the manufacturers or the people that discover an herb, a food source—these are natural, an essential oil, a homeopathic remedy. These companies cannot by law say what the product does because if they say that this herb cures diabetes, then the Food and Drug Administration comes in and says, "Ah! You can't say that because only a drug can cure a disease."

TRUDEAU: The drug industry just started. Before then, there were only natural cures. [**Actually, the number of curative products was close to zero.**] But the drug industry in America is the most profitable industry in this country. You know what else is the most profitable industry is the insurance industry and the food industry.

MATTHEWS: Right.

TRUDEAU: For example, obesity, weight loss . . . there are natural remedies for weight loss that the drug companies and the food industry does not want you to know about. . . . The lobbyists in Washington right now, as we speak, are demanding that the federal government and the various organiza-

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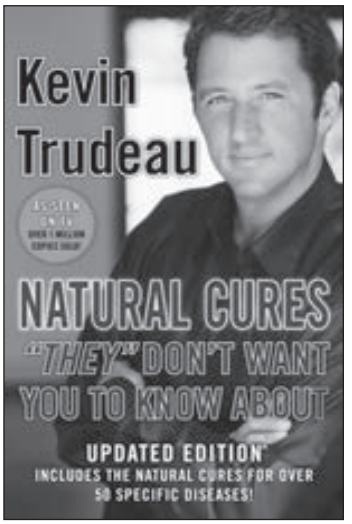
tions—independent bodies—do not promote "eat less, exercise more." The food industry does not want the message "eat less, exercise more." Why? Because eating less means people consume less food. [**This claim is a flat-out lie. Many government, professional, and educational organizations promote the idea of eating less and exercising more. The most prominent such effort is published every five years as the Dietary Guidelines for Americans.**]

MATTHEWS: So the common threat in all of this seems to be money.

TRUDEAU: It's all about money. The drug industry does not want people to get healthy. [**It might be interesting to ask Trudeau what evidence he has for this claim.**] Now think about that. People think, "[Inaudible] drugs are good." No. The drug industry does not want people to get healthy. The drug industry wants people to buy more drugs. Healthy people don't need drugs. If everyone in America was healthy, the drug industry would be out of business. [**That's literally true, but irrelevant. Illness is not going to disappear. The realistic view is that the drug industry could not succeed unless it produces safe and effective products.**]



TRUDEAU: So . . . but if there was a way to cure migraine headaches forever so they never came back . . . if there was a way—and there is—a natural remedy you can put on the skin that will get rid of pain forever. [**I don't believe that.**] Arthritis pain will go away. There is a natural, herbal supplement that the Asian Diabetes Association has called "the final cure for diabetes." [**I don't believe that either.**] It is the absolute cure. It's an herbal remedy, it's taken for three months approximately, and it will dramatically reduce or eliminate the need from any insulin shots, and it can cure diabetes type I and type II, in the majority of cases. Now do you think the companies that manufacture diabetes products want a cure for diabetes? [**I find it difficult to believe that the medical organizations and all of the doctors who treat diabetics would not be promoting such a product if it existed. Trudeau, of course, wants you to believe he has nearly unique knowledge of the "cure" so you will buy his book.**]

"Do you think the food industry wants people to be thin? No. The food industry wants people to be fatter. There are ingredients being put in food right now that make you hungry."

—Kevin Trudeau

TRUDEAU: There was a study conducted on vitamin E . . . natural vitamin E . . . as a blood thinner. . . . And they compared it to the drug Heparin. And this research showed that vitamin E worked as good or better than the drug Heparin. Well, if you go to a hospital, you don't get vitamin E. [**By failing to identify the study, Trudeau makes it difficult to check whether he is interpreting it correctly. However, to anyone familiar with medical care, the statement is absurd on its face. Vitamin E has slight anticoagulant effects, but hospitalized patients who need immediate anticoagulation require a drug that is powerful and predictable. For many conditions, intravenous Heparin has been replaced by various derivatives that are safer and easier to administer.**]

MATTHEWS: No.

TRUDEAU: You get Heparin, because it's a drug, and it's a profitable drug. Drug companies do not want people to get healthy; they want them to buy more drugs. If you have, for example, a pain, headache, they don't want your pain to go away forever. They want you to be popping some type of pain-relieving pill for the rest of your life. [**Again, Trudeau offers no evidence that this is true.**] See, if you have a headache, it's not because you have an aspirin deficiency. Think about it.

MATTHEWS Right.

MATTHEWS: I was going to mention that would put a real cramp in the insulin makers'—

TRUDEAU: It would wipe out a whole industry.

MATTHEWS: Right.

TRUDEAU: And this is the problem. Do you think the food industry wants people to be thin? No. The food industry wants people to be fatter. There are ingredients being put in food right now that make you hungry. [**Note that he doesn't identify them.**] There are ingredients being put in food right now that make you addicted to the food. There are ingredients that are being put in food right now that make you fat, and most of these products are called "diet products."

TRUDEAU: Cancer . . . there are cures for cancer. There are

When challenged by the FTC, Trudeau had the opportunity to defend himself by presenting evidence that his product claims were true. Instead of doing this, he agreed to go out of the "natural cures" business.

ways to prevent cancer.

MATTHEWS: What are some—I mean, without giving away too much of the book? [**The book does not suggest any "cancer cures." In fact, it contains almost no advice on how to cure specific conditions. People who buy the book with the hope that it will help cure what ails them are unlikely to find such advice.**]

TRUDEAU: You know, I have been attacked by the FTC and the FDA for making statements that are true. [**Not true. He was "attacked" for making statements that were false. In fact, he made so many that the FTC finally got a court order making it illegal for him to sell any products except publications. When challenged by the FTC, Trudeau had the opportunity to defend himself by presenting evidence that his product claims were true. Instead of doing this, he agreed to go out of the "natural cures" business. If he had facts to back him up, do you think he would have agreed to stop selling products whose sales totaled hundreds of millions of dollars?**]

TRUDEAU: If your body pH is alkaline, you cannot get cancer. . . . [**This statement is false.**] Okay? If it's acid, you can get cancer. In our—my personal observations, every single person who has cancer has an acidic body, acid pH, where it's so [acidic] that it's dramatically [inaudible]. [**Considering the fact that there is no such thing as acidity or alkalinity of the body, I wonder what "observations" he can use to determine whether someone's body is acidic.**]

TRUDEAU: There are natural cures, that are not drugs, that absolutely work. And the companies that manufacture these natural remedies, or in some cases, simply foods that you can consume or foods to avoid—just take this food out and the problem goes away—these companies cannot state what their products do, what the homeopathic remedies do, what the essential oils, what the herbs, what the vitamins, the minerals. The companies that sell these products cannot say what they really do, because if they do, the FDA will come in and say you're making a claim, therefore it's a drug, therefore, you're selling a drug without a license, and the FDA. . . . [**These statements are false or misleading. The FDA has approved more than a dozen health claims that can be made for foods. The only requirement is that the claims be truthful and supported by competent scientific evidence. Even though all homeopathic products are worthless, the FDA permits products whose ingredients are listed in the Homeopathic Pharmacopeia to be sold without a prescription for self-limiting conditions readily diagnosable by consumers. The FDA's policy toward the other products is that no claim can be made unless it is supported by competent scientific evidence.**]

TRUDEAU: The drug industry is trying to get—for years—has tried to get all vitamins and minerals labeled "drugs" so that they can control it. [**This is a flat-out lie and scare statement used by the supplement industry to get vitamin users to ask Congress to weaken FDA protection. In the early 1970s, the FDA wanted to stop the sale of very-high-dose nutrients without a prescription. However, a health-food-industry campaign persuaded Congress to pass the Proxmire Amendment to the federal Food, Drug, and Cosmetic Act to prohibit the FDA from limiting the potency of ingredients of vitamin and mineral products that are not inherently dangerous.**] There are health freedoms in this country that are being taken away from us. There are more people sick today than ever before. There are more people that are overweight. There are more people that have diabetes. There are more people that have cancer. There are more people that have heart disease. There are more people that have migraine headaches. There are more people that have arthritis. There are more people that have virtually every major health abnormality. . . . [**Trudeau doesn't indicate how he does his counting. Since the American population is increasing and since Americans are living longer, I would expect an overall increase in the number of people becoming ill and in the number of people acquiring diseases that are prevalent in older**

people. However, Trudeau's statement is false because the incidence of many diseases has decreased. Poliomyelitis, for example, has been wiped out in the United States.] It's getting worse and worse. Medical science has failed. It's obvious. When more and more people are getting the disease, isn't it true that the medical industry is failing us? [**As noted above, the answer is no. In addition there has been tremendous progress in helping people cope with various diseases.**] More people take drugs today than ever before.

TRUDEAU: You're sick. You go to a medical doctor. . . . This is what normally happens. The doctor is allegedly trained, looks at your symptoms; based on what he sees in his experience and knowledge, writes you a prescription . . . or he cuts out a part of your anatomy. That's pretty much what doctors do, right? [Laughs] [**Wrong. Doctors may also recommend dietary change, other measures, or simply waiting, if a problem seems likely to go away by itself.**]

MATTHEWS: Studies, for example, are very misleading. You take depression, and a study said St. John's Wort, which is a natural herbal remedy for depression—it's been used for centuries.

MATTHEWS: I've talked to people who have touted that highly.

TRUDEAU: Okay. There was a specific study that came out, and on the front page of the newspapers, it said, "St. John's Wort proven ineffective in studies."

MATTHEWS: Right. I remember that.

TRUDEAU: "Proven ineffective." Well, nobody actually-

MATTHEWS: By whom?

TRUDEAU: Nobody read the study.

MATTHEWS: Yeah.

TRUDEAU: When you look at the study, there was St. John's Wort and two prescription medications that are [inaudible] powerful and allegedly antidepressants.

MATTHEWS: And placebo. Yeah.

TRUDEAU: Okay? So they had these in the study, and guess what? The study showed that none of them did anything for depression. So, obviously the study's flawed or none of them work.

TRUDEAU: Drugs are not the answer for depression. Drugs are not the answer for cancer. [**I don't believe that mainstream practitioners claim that drugs are "the answer" to either problem. Drugs are highly effective against some types of depression. Similarly, drugs are effective against many types of cancer.**]

MATTHEWS: But . . . you could not have a homeopathic medicine advertised on *Seinfeld* to do the same thing and probably cause your body less harm. [**That's correct, because no homeopathic product is effective against depression or cancer.**]

TRUDEAU: Now, I can't tell you—the federal government is forbidding me to tell you these [testimonials] because they say, "They don't mean anything." [**Trudeau is correct that testimonials are not evidence of effectiveness. However, he has not been ordered to stop telling stories. The court order forbids him to sell products other than books and newsletters.**]

MATTHEWS: You have a gag order.

TRUDEAU: That's right.

MATTHEWS: [Chuckles]

TRUDEAU: "They don't mean anything. They're only anecdotal."

MATTHEWS: Yeah.

TRUDEAU: Let me tell you something. You talk to these people. Tell *them* it doesn't mean anything. It means their life.

TRUDEAU: There are all-natural cures. You'll never hear about them because the manufacturers can't tell you what they are. Diabetes, migraines, cancer, heart disease, acid reflux, Attention Deficit Disorder, depression, stress, phobias, fibromyalgia, pain of all sorts, arthritis, the list goes on. Lupus, multiple sclerosis; there are cures for multiple sclerosis. There are cures for muscular dystrophy that are all natural and people are not being allowed— [**Manufacturers are not the only information sources. If these "cures" were effective, wouldn't they be making headlines everywhere? Trudeau apparently would like you to believe that he is the only person who is willing to reveal the secrets. Would any such belief be logical?**]

TRUDEAU: [Quoting from his book] "I would like to give you the cures for every disease; I would like to tell you the natural treatments available that can eliminate your symptoms and, at the same time, address the cause instead of suppressing the symptom. However, as I began to write this book, the Federal Trade Commission and the Food and Drug Administration took unprecedented action. I am forbidden to give you specific cures in this book. The FTC has ordered me not to give you any specific product recommendations, or say where you can acquire the cures and receive treatment. This entire chapter has been censored by the FTC." [**Do you believe this? I don't. Trudeau signed a voluntary agreement that he would not sell health or disease products or use publications to sell them. He still has the First Amendment right to claim that various generic methods or product ingredients provide benefits, as long as he is not promoting a branded product. FTC attorney Daniel Kaufman, the lead attorney in the recent case against Trudeau, told me that the basic principle involved is that Trudeau is not permitted to use a book as a**

Andrew Weil: Harvard Hatched a Gullible Guru

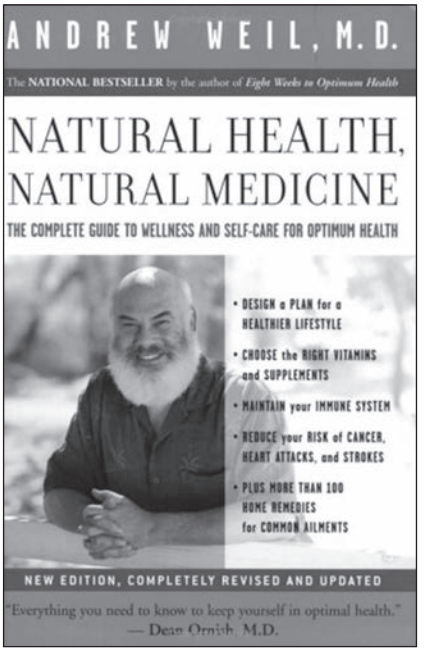
HARRIET HALL

Natural Health, Natural Medicine: The Complete Guide to Wellness and Self-care for Optimum Health. By Andrew Weil. Boston: Houghton Mifflin Co., 2004. ISBN 0-618-47903-1. 432 pp. Softcover, $14.

Andrew Weil's *Natural Health, Natural Medicine* is a dangerous book. The preface states: "All the information is consistent with the best scientific evidence currently available." This is simply not true. The information is a promiscuous mix of good science, unsupported opinion, and superstition, with no clues as to which is which.

Weil wants you to avoid conventional doctors except for cases of trauma, bacterial infection, and emergencies. He wants to keep the body healthy by natural means, allowing it to heal itself. He wants you to avoid drugs, but by golly, he wants you to try every herb, diet supplement, home remedy, and placebo he can think of. Some of his advice is based on good science (exercise and smoking cessation), but much of it is not supported by credible evidence (breathing exercises, fasting, and even homeopathy, which has been the laughingstock of science for two centuries).

Over and over, he asks the patient to experiment: try Ayurveda, try homeopathy, try an herb, try a diet modification. See if you can "make them work" for you. The problem with this approach is that many conditions are self-limited and others have variable courses. When your symptoms happen to subside, you will falsely attribute success to whatever remedy you happened to be trying at the time.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For recurrent ear infections in children, he recommends eliminating all milk and milk products from the diet for at least three months to see if any benefits result. The folly of this is readily apparent. Even children who have recurrent infections are likely to go without an infection for a three-month period. If they have avoided milk for those three months, they may falsely conclude they are allergic to milk and avoid it forever after.

And what does he base this advice on? I could find only one relevant article in the medical literature showing that 27 percent of children with true cow's-milk allergy had recurrent ear infections, compared to 12 percent of nonallergic children. Admittedly, children with milk allergy are more likely to get ear infections; but the majority of allergic children do *not* get infections, nonallergic children also get infections, milk allergy causes a number of other symptoms, and its diagnosis does not depend on ear infections. The logic of Weil's advice is like the logic of trying Ritalin on all children with poor grades just because children with attention deficit hyperactivity disorder (ADHD) are more likely to get poor grades.

His advice about rheumatoid arthritis is not only foolish but dangerous. He recommends avoiding prescription drugs, but research has shown that early treatment with disease-modifying drugs can change the course of this disease. If you waste time trying home remedies, you may miss the chance to prevent crippling deformities.

Fifty years ago, doctors could get away with saying, "In my experience. . . ," but today, that is no longer acceptable. We know that experience can be misleading, and we use science to test beliefs derived from experience. Weil still wants us to accept treatments just because he thinks he has seen them work.

He debunks a number of myths but replaces them with others. In his

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discussion of the fad pseudodisease of hypoglycemia, he disparages practitioners who recommend "all sorts of vitamins and supplements that are unlikely to be of any value." That is particularly amusing, since that is exactly what Weil himself does throughout this book for other diagnoses.

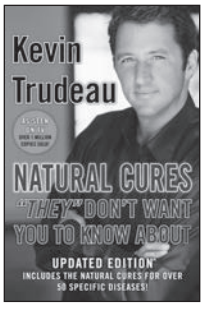
Weil is America's leading advocate of "integrative" medicine. It seems he wants to "integrate" critical thinking with opinion, myth with reality, the twenty-first century with the fifteenth, and proven remedies with old wives' tales. Why would he want to do this? What are we to make of an M.D. whose advice for herpes includes the standard drug acyclovir but also includes "visualizations and mental affirmations to let the herpes virus know that it is welcome in your body only if it stays in its dormant state"?

Insight into Weil's shifty paradigms can be gleaned from "A Trip to Stonesville," by Arnold Relman, M.D., editor emeritus of *The New England Journal of Medicine* (available online at www.quackwatch.org/11Ind/weil.html). Relman describes how Weil rebelled against his Harvard training, associated with native healers, took psychedelics, pursued states of altered consciousness, and came to believe that truth can be accessed through "stoned" thinking. Relman says, "Like so many of the other gurus of alternative medicine, Weil is not bothered by logical contradictions in his argument, or encumbered by a need to search for objective evidence."

The book is indeed full of contradictions. Weil advises against suppressing hay fever symptoms with antihistamines or steroids, because "Suppressive treatment can perpetuate disease by frustrating it." What does he recommend instead? Natural remedies that he says will . . . suppress symptoms!

I can agree wholeheartedly with Weil's advice to stay away from conventional doctors unless you are really sick and not take drugs unless you really need to. It would be even better advice if it extended to staying away from unconventional doctors and not taking unproven remedies.

If you like to try a lot of things and experiment on yourself on the basis of opinion and nonscientific beliefs, you might like this book. If you want reliable, common-sense health advice based on good science, buy one of Dean



It's All about the Money

ROBERT L. PARK

Natural Cures "They" Don't Want You to Know About.
By Kevin Trudeau. Alliance Publishing Group, Inc., 2005.
ISBN 0-975-59951-8. 570 pp. Hardcover, $29.95.

Anyone who somehow missed Kevin Trudeau's alternative medicine infomercials (see p. 51 in this issue) can now read his book, *Natural Cures "They" Don't Want You to Know About*. The book reads like an infomercial, but allows the reader at least a chance to pause and think about Trudeau's simplistic answers to the complex questions of health.

Why do people get sick? "The number one reason people are sick," Trudeau explains, "is because of the amount of drugs they take." He says statistics show conclusively that the more prescription and nonprescription drugs a person takes, the sicker he or she is.

I haven't seen "the statistics," but I'm sure he must be right. People who are sick undoubtedly do take more medicine than people who are well. This sort of upside-down logic is rampant in his book, along with the warning, endlessly repeated, that "it's all about the money." Believe me, it is.

Why are Americans getting fatter? Trudeau reveals the inside story: "Scientists who work in secret laboratories are developing chemicals and combinations of chemicals that are added to our food and not put on the label." These "secret poisonous chemicals," he explains, are specifically designed:

1. To make people hungry, so they will buy more food.
2. To make people fatter, because fat people eat more.
3. To addict people to the product.
4. To cause disease, because the food industry is in cahoots with drug companies.

What evidence does Trudeau provide of this shocking conspiracy? Kevin Trudeau doesn't do "evidence." He prefers to describe himself as a "whistle blower." His information, he claims, comes from unnamed "insiders." Other information seems to come from thin air: "I was looking through history books about Nazi concentration camps in World War II," Trudeau writes, "and I noticed that the people behind the barbed wire were all skinny. There weren't any fat people there." Trudeau's conclusion? "Your genes don't make you fat . . . everyone can lose weight." Sure, just check into a concentration camp.

"Animals in the wild never get sick," we are told. What nonsense! Naturalists encounter sick and dying animals every day. Influenza, for example, is a bird disease (heard of bird flu?). It ravages wild bird populations every year and only occasionally does a strain cross over to humans. Wild animals are riddled with parasites and infectious diseases.

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"There are cultures around the world where the people have never had cancer, or heart disease, or acid reflux disease, or prostate problems, etc." Wrong. There are certainly populations where these conditions are less common, but you may not want to live there. These are the diseases of old age. They are most common in the developed nations, where people have life expectancies about double that of the rest of the world.

The statements Trudeau makes are so preposterous that you might be tempted to dismiss anyone who would pay $29.95 for his book as hopelessly gullible. Unfortunately, they are more likely to be merely hopeless. Chronic pain and terminal illness have a way of making people willing to try just about anything. And the most widespread terminal condition is old age.

So who is this man, preying on the most vulnerable among us? Kevin Trudeau is a forty-two-year-old ex-convict with no formal education, who possesses a truly awesome natural talent for infomercial marketing. He is a classic snake-oil salesman. Sometimes referred to as "the Infomercial King," Trudeau prefers to describe himself as "the nation's foremost consumer advocate."

The Federal Trade Commission sees him a little differently, fining him millions of dollars for false and misleading advertising and barring him from any further participation in infomercial marketing. However, to avoid infringing on his protected free speech rights, the FTC allowed an exception for "truthful infomercials for informational publications." Trudeau, thumbing his nose at the FTC, now does infomercials marketing his book. According to the book cover, over 1.5 million copies of *Natural Cures "They" Don't Want You to Know About* have been sold. This seems to be the only book offered by the Alliance Publishing Group, Inc. Who owns Alliance Publishing? Kevin Trudeau.

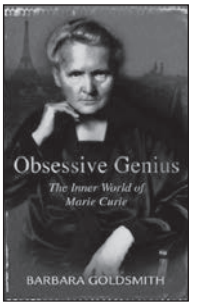
Trudeau's legal problems are nothing new. In 1990, he posed as a doctor in order to deposit $80,000 in false checks, and a year later pled guilty to credit card fraud in exchange for a two-year prison term. His prison time, he says, made him realize that "the love of money is the root of all evil." Americans love a reformed sinner, but has he really reformed? In 1998 he was required by the FTC to pay $500,000 to cover consumer redress relating to false or misleading claims made in six infomercials, and in 2004, he was fined $2 million and ordered to stop doing infomercials.

Trudeau makes no attempt to hide his troubles with the FTC; in fact, he wears his convictions as a badge of honor, proof that the establishment is out to silence him. The Federal Trade Commission, the Food and Drug Administration, congress, the drug companies, the food industry, the medical profession, and the scientific community, he says, are all part of a vast establishment conspiracy that makes people sick so they will buy dangerous drugs that will make them sicker still.

What should make us all wince are the tiny threads of truth woven into the fabric of this sleazy book: unhealthy ties of NIH scientists to the drug companies, regulatory agencies that seem more concerned with the health of the industries they regulate than with public health, lax enforcement of environmental regulations, tobacco companies that denied for years that their deadly product was harmful and yet are still in business. It's a standard tactic of scam artists to dwell on the sins of "the establishment," but Trudeau didn't have to make up the establishment sins.

Attorneys general of several states vigorously enforce state consumer protection laws, but the result is usually a consent-decree under which the snake oil merchants simply agree to cheat the citizens of other states. A huge and growing segment of the national population is victimized by alternative medicine scams that the FDA and FTC seem incapable of dealing with.

Ultimately, the only group in a position to challenge alternative medicine is the scientific medicine community. The job is left almost entirely to a handful of dedicated scientists and physicians who are well past retirement. You cannot build a reputation as a medical scientist by attacking an uneducated convicted felon with no medical credentials like Kevin Trudeau. *Natural Cures* is anti-es-



A Glorious, Dangerous Obsession

GREG MARTINEZ

Obsessive Genius: The Inner World of Marie Curie. By Barbara Goldsmith, Atlas Books. W.W. Norton & Company, New York, 2005. ISBN 0-393-053137-4. 256 pp. Hardcover, $23.95.

In the introduction to her sensitive and thoughtful new biography of Marie Curie, *Obsessive Genius: The Inner World of Marie Curie*, the fourth in the *Great Discoveries* science book series, Barbara Goldsmith states her intention to get past the romanticized image of the lonely, suffering woman scientist struggling in a world of sexist hostility and repression to take a clear-eyed look at her personality and achievements in a fair, non-politicized manner. That her success in this goal is only mixed does not diminish the excellence of this absorbing and moving book.

Goldsmith is largely successful in

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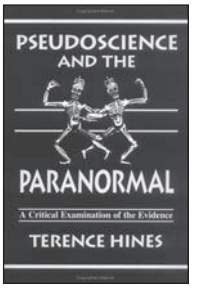
addressing Curie with respect and evenhandedness, but she cannot possibly get past the romanticism of Marie's personal narrative. Her life possesses the kind of sweep and drama that is the stuff of epic romantic films. It is remarkable that her life story has been filmed only once, a reasonably accurate if rather narrowly focused effort, *Madame Curie,* by director Mervyn Leroy in 1943. To try to ignore her vivid and dramatic life would be to lose much of the narrative grip of this book. Curie's obsessive thirst for knowledge plays out against a historical backdrop of flights from tsarist oppression, failed love affairs, tragic deaths, an almost unrelieved battering at the hands of the sexist and nationalist French scientific establishment, spells of clinical depression, and the eventual triumphs of two Nobel Prizes.

Goldsmith adeptly controls this drama, never allowing it to fully overwhelm a thorough discussion of Marie's tremendous scientific achievement. The passages that detail her research and its revolutionary nature are marvelously clear and lucid explanations of a complex and often tedious process of discovery. These passages serve to enrich the drama of her life because she accomplished such amazing scientific insights despite astounding obstacles. Her drive and resourcefulness were admirable, going to extraordinary lengths and some real personal risks to secure a reliable supply of the pitchblende ore she needed for her experiments, and to obtain the laboratory space she required.

Such a drive to achieve can easily become an obsession, and in Marie's case such an obsession caused her to pay a very high price. Her home life with husband Pierre was, to say the least, unconventional. They had two children together but Marie was a cold and distant mother. Goldsmith is charitable to Curie, but her daughters grew up seeing and knowing very little of their parents. The laboratory was their real home, and Marie seemed to be able to relate with people only in the context of the lab. Irene, her older daughter, took after her parents and became a skilled scientist and researcher. After Pierre's death, the two became closer as a collegial relationship grew between them. They shared a remarkable bonding experience during World War I. Marie invented a portable x-ray machine and the two women hauled it around the battle fronts assisting battlefield surgeons in locating bullets and shrapnel in wounded soldiers. Eve, the younger daughter, never took to science and was raised primarily by her grandfather. She studied music and eventually wrote a biography of her famous mother.

Goldsmith's biography allows Marie Curie a full, if troubled and flawed, humanity, not just a two-dimensional martyrdom in a dingy garret room. The virulent sexism she faced is presented as an execrable and pointless hindrance to her pursuit of brilliance. Goldsmith strikes a fine and careful balance between celebrating Curie's tremendous intellect and accomplishments and examining the pathologies that created so many disturbances in her private life.

At first, Barbara Goldsmith would appear to be an unlikely choice to write a biography of a scientist and intellectual. Her previous biographies are profiles of minor celebrities like Gloria Vanderbilt and Victoria Woodhull. However, Goldsmith delivers an insightful and thoroughly researched portrait of a singular and extraordinary woman, who despite extensive setbacks persevered to become one of the greatest scientists in



Examining the Psychology of Belief

DAVID LUDDEN

Pseudoscience and the Paranormal. Second ed. By Terence Hines. Prometheus Books, Amherst, N.Y. 2003. ISBN 1-57392-979-4. 500 pp. Softcover, $21.

As Terence Hines describes in his book *Pseudoscience and the Paranormal*, Helen Sullivan could walk only with a back brace, due to the cancer that had weakened the bones of her spinal cord. But when faith healer Kathryn Kuhlman told her that her cancer was cured, Sullivan threw off her back brace and ran across the stage several times as the audience applauded and Kuhlman praised the Lord. For the rest of the evening, Sullivan felt no pain, but by early morning, the pain had returned, only more intense than before. Without the support of her brace, one of her vertebrae had collapsed. Two months later, Sullivan was dead of the cancer that Kuhlman had "cured" her of. Although it is clear that Sullivan had not been cured, what can account for Sullivan's behavior that night on stage? The answer, according to psychologist Terence Hines, lies in the physiological and psychological factors that predispose all of us to supernatural beliefs.

Physiological conditions, such as epilepsy and migraines, are often associated with paranormal and mystical experiences. Epileptic seizures arise from aberrant electrical activity in the brain, and seizures in the motor areas of the brain give rise to the convulsions typically associated with epilepsy. However, when epilepsy occurs in other areas of the brain, there may be no obvious outward changes

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in behavior and it can be detected only by medical tests. Temporal lobe epilepsy is known to produce feelings of profound joy and religious ecstasy, and is strongly correlated with the tendency to report mystical and paranormal experiences. Temporal lobe epileptic activity has also been recorded in trance mediums and people with high hypnotic susceptibility. Furthermore, epileptic-like brain activity can be induced fairly easily in non-epileptic populations. According to Hines, "Similar physiological changes may be brought about by the rhythmic chanting, singing, and dancing seen in the religious and conversion rituals of many cultures." Because approximately one percent of the population has been diagnosed with epilepsy, the condition is more prevalent than most people might think, and it can account for a large number of supposed paranormal experiences. Migraines are caused by abnormal changes in blood flow to the visual area of the brain and sometimes give rise to hallucinations similar to the religious visions that have been reported by mystics through the ages. In addition, some people experience migraine hallucinations without feeling any pain, so they may attribute these hallucinations to supernatural causes instead of physiological ones.

Many ghost sightings and abduction experiences are reported to occur when going to bed or waking up. The state between wakefulness and sleep is called *hypnagogia*, and both auditory and visual hallucinations are common during this time. Hypnogogic hallucinations are experienced as being far more realistic than dreams, and so it is easy for the person experiencing them to believe that they are real events. This fact leads Hines to assert that hypnagogic "hallucinations are responsible for a great number of impressive reports of ghosts and similar apparitions." In addition, waking hallucinations are also very common, but because this fact is not well known, people tend to interpret them as real. Thus, Hines concludes that "[i]t is the commonness of such hallucinations . . . that accounts for the 50 percent of Americans who report that they have had some sort of paranormal experience indicative of life after death."

Other paranormal experiences can be explained by the fact that people do not have as much conscious control over (or awareness of) their outward behavior as they think they do. As Hines points out, "Even under normal conditions of muscle tension, the feedback from the muscles that tells the brain about the degree of muscular movement is far from perfect . . . [, and continued] tension placed on the muscles . . . aggravates this situation." Thus, it is not supernatural forces but small, unconscious muscle movements that guide the Ouija planchette or tip the dowsing rod. Likewise, the hand motions in the autism technique Facilitated Communication come not from the patient but from the facilitator. However, because these movements are unconscious, it seems only natural to attribute them to some external force.

Hines also shows how apparent instances of faith healing can be explained by the role that emotional arousal plays in pain suppression. The brain produces a class of chemicals called endorphins that are released to suppress pain during times of stress or emotional arousal. The release of endorphins explains how injured athletes can complete competitions and wounded soldiers can manage acts of heroism. Patients who seek miracle cures are excited by the prospect of a cure, and the music, singing, and oratory that precede faith-healing events heighten this emotional arousal. Thus, during and shortly after the faith healing session, the patients feel less pain due to the release of endorphins, although they attribute this to the powers of the faith healer. After the session, the pain returns, often magnified by subsequent damage, but, as Hines points out, "faith healers almost never follow up on cases they claim to have cured, [so] it is easy to understand why both members of the audience and the healers themselves can become convinced that their cures are real."

The constructive nature of perception and memory is another theme that runs through *Pseudoscience and the Paranormal*. People generally assume that sensory perception presents a veridical depiction of the environment, but this is not the case. Rather, our perception is a reconstruction of the external world based on rather limited evidence and a lot of guesswork. Especially in conditions of poor visibility, such as low illumination and fuzzy detail, visual perception is largely a product of expectation. It is under just such conditions that most UFO and supernatural sightings are made. "People who report seeing impressive flying saucers are not lying," Hines maintains. "They really perceive them, even though they weren't there. The objects were a construction of their brains and seem just as real as if they actually had been there."

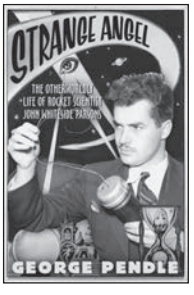
The layperson's view of memory is just as flawed. Although people admit that their memories have gaps due to forgetting, they generally assume that what memories they can recall are accurate. However, psychologists such as Elizabeth Loftus have repeatedly demonstrated that subsequent experiences, leading questions, and hypnotic suggestion can drastically reshape memories and even create memories of events that never occurred. Thus, Hines maintains that supposed alien abductees really do "believe that they had been abducted and . . . cruelly used by the aliens." Likewise, false memories of childhood abuse were planted in patients of recovery memory therapy by therapists through the technique of guided imagery and the use of hypnosis.

Again, contrary to general belief, hypnosis is not effective at recovering lost or repressed memories—but it is very effective at planting false ones. Furthermore, because perception and memory are constructive, eyewitness testimony is unreliable, in spite of the weight generally given it. As Hines notes, "No one is so likely to be believed as someone who truly believes what he is saying." And yet it is exactly this convic-

tion that should serve as a warning that the testimony is probably not accurate.

Human memory is not only extremely fallible, it is also highly selective. Throughout the book, Hines gives examples of selective memory that lead people to believe in paranormal phenomena. One example of selective memory is the fallacy of personal validity, which leads people to "believe that a vague stock spiel, with few or no specifics, is an accurate description of their own individual personality." This fallacy leads to popular belief in the predictive abilities of horoscopes, biorhythms, psychics, and personality tests. Another example is illusory correlation, which leads "individuals [to] perceive certain variables as co-occurring more frequently than they actually do." Generally, we are more likely to remember two events as occurring together if we believe that they *should* occur together. Illusory correlation lies at the root of stereotypes and prejudices as well as such false beliefs as moon madness. However, illusory correlation also leads psychics and psychotherapists to believe in their own predictive abilities.

Although Hines does a thorough job of examining the physiological and psychological aspects of a wide range of pseudoscientific and paranormal phenomena, the book suffers from a few weaknesses. Sometimes it seems that Hines is not skeptical enough, especially in his discussion of the potential benefits of hypnosis and electroshock treatment; furthermore, his guarded optimism for acupuncture does not seem warranted by the literature he cites. In addition, Hines's use of sarcasm detracts from the scholarship of the book. Especially for the reader who would prefer to believe but is willing to listen to the skeptical point of view, Hines's sarcasm may come off as blatant dismissal of paranormal claims. Nevertheless, one cannot help but smile when Hines refers to Geraldo Rivera as "that paragon of journalistic integrity" or comments on how homeopathy can at least "dilute the 'yuck' factor" of urine therapy. *Pseudoscience and the Paranormal* is sure to please both the armchair skeptic looking for clear rebuttals to paranormal nonsense and the scientist interested in understanding the cognitive mechanisms involved in supernatural beliefs.



Rocketry and Wizardry

HOWARD SCHNEIDER

Strange Angel: The Otherworldly Life of Rocket Scientist John Whiteside Parsons. By George Pendle. Harcourt, New York. 2005. ISBN 0-15-100997-X. 368 pp. Hardcover, $25.

George Pendle's biography of John Whiteside Parsons is an engaging, sympathetic account of a most bizarre human being: a virtuoso, trailblazing rocket expert—and an avid participant in eerie occult rites.

Jack Parsons, little known today, was born in Los Angeles in 1914. He was raised by his mother and her wealthy parents in luxurious surroundings in Pasadena. Inspired by Jules Verne and pulp science-fiction magazines like *Amazing Stories*, he became fascinated by space travel and rocketry. By the time he was a teenager, he was analyzing, building, and launching his own rockets.

Money problems, brought on by the Great Depression, prevented the young man from attending college, but he persevered with his rocketry studies and mastered an extraordinary amount of information on explosives and chemicals while working at explosives-manufacturing plants.

At the time, most American scientists and engineers disdained rocketry as contemptible nonsense. Nevertheless, in 1935, through pluck, seriousness, and charm, Parsons and two friends, Edward Forman and Frank Malina, persuaded Theodore von Kármán, "the most gifted aerodynamicist of the era," and the man who was then in charge of the Guggenheim Aeronautical Laboratory at the California Institute of Technology (GALCIT), to allow the three rocket enthusiasts to operate under GALCIT's authority and to use its equipment. Caltech students came to call Parsons's coterie the Suicide Squad, a term that denoted the rocketeers' cocky attitude toward explosives.

As events in Europe and Asia became progressively more ominous in the 1930s, the work of Parsons and his associates drew the attention of Washington. In 1939, the government contracted with Parsons's team to ascertain whether rockets were a viable way to "facilitat[e] the 'super performance' of aircraft—in other words, if rockets, when attached to a plane, could shorten the time and distance of takeoff, increase the rate of climb, and increase the level-flight speed."

The Suicide Squad earned the money it acquired from that contract and subsequent ones. On August 12, 1941, Parsons and company launched the first successful jet airplane in America. In 1942, in a remarkable triumph of imagination united with trial-and-error experimentation, Parsons created GALCIT 53, "a whole new category of rocket fuel . . . making solid propellants suddenly much safer and immensely more practical." A colleague said the fuel was one of "the most important discoveries in the long history of solid rockets." Parsons was a cofounder of the Aerojet Engineering Corporation, which built solid- and liquid-propellant rocket engines for the armed forces, and he helped to found the Jet Propulsion Laboratory at Caltech, which has since become the world's

Howard Schneider is a writer and editor in New York City.

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foremost institution for the exploration of the solar system.

In 1939, Parsons was introduced to the Los Angeles chapter of the Ordo Templi Orientis (OTO), a cult that staged the magical rituals and espoused the mystic doctrines of Aleister Crowley. Crowley's basic tenet was, he explained, "Do what thou wilt shall be the whole of the Law." According to Pendle, "The OTO's members believed that sexual ecstasy could lift one to a different plane of consciousness. . . ." Parsons immersed himself in occultism with the same intensity he brought to science. In 1941, he became a member of the OTO. A year later he persuaded the L.A. branch to move to Pasadena and paid most of the expenses to install the group in a mansion on tony Millionaire's Row. It was around this time that the FBI, on the hunt for wartime subversives, described the OTO in a file as a "love cult."

Parsons's passion for the occult eventually pushed him beyond Crowley's "magick" to essay some other rather funky forays into the supernatural. He tried to conjure up an "Elemental mate." He also attempted to summon the goddess "Babalon" [*sic*], the Scarlet Woman in the Book of Revelation.

Parsons's last years were not happy ones. His first wife, Helen, ran off with his OTO mentor. His mistress (Helen's younger sister) ran off with L. Ron Hubbard. His second wife, whom Parsons believed was his Elemental mate, ran off to Mexico. Bad advice cajoled him into selling his shares of Aerojet, shares that would later be worth a fortune. He was twice stripped of his government security clearance, which meant he couldn't work on government-funded research projects. On June 17, 1952, Parsons was killed in an explosion while mixing chemicals. It was a sad demise. He was only thirty-seven.

How does one make sense of a man like John Whiteside Parsons? Parsons himself pondered the matter. Writing three years before his death, Parsons stated with a certain sober detachment, "It has seemed to me that if I had the genius to found the jet propulsion field in the U.S., and found a multimillion dollar corporation and a world renowned research laboratory, then I should also be able to apply this genius in the magical field." Parsons's longtime friend and colleague, Frank Malina, offers a different view: "[Parsons] wasn't schizophrenic, but he had two domains which he loved; one was rocketry, where the dream was tangible—where the magic was not resorted to. Then he had a second compartment in his mind where magic fascinated him. . . . As far as I can remember talking to him about calculations on rocket design, there was no input from what you might say alchemy or magic. In other words he functioned in compartments." Malina's assessment provides a canny and cogent explanation of how Parsons could be, simultaneously, a gifted, indefatigable man of science and preposterously deluded.

Strange Angel is British writer George Pendle's first book. It is absorbing, well researched, and fluently written. The author deftly weaves together the lives of Parsons and his circle; lucid explications of relevant technologies; and the histories of rocketry, Southern California, and other topics. Pendle deserves praise for trying to reintroduce the public to a major figure in the annals of American rocketeering, a figure who has long been unduly and

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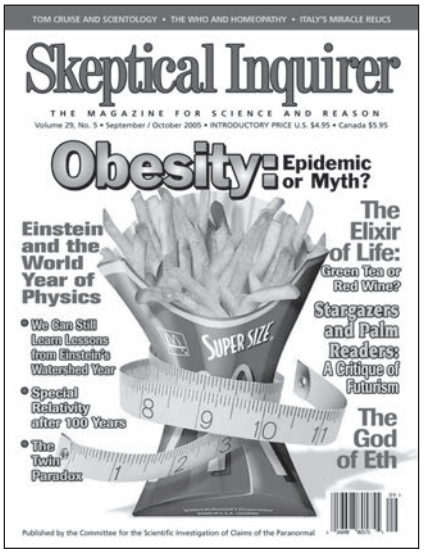
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Obesity: Epidemic or Myth?

In "Obesity: Epidemic or Myth?" (September/October 2005), Patrick Johnson neglects to address the first question that should be considered before deciding on the answer to the title question: How does one determine the borderline between normal weight and obesity? He mentions that a usual practice is to "normalize" weight to minimize the effect of height as a variable by comparing BMIs (body mass index—the ratio of weight to the square of height, not a simple ratio of the two, as Johnson says) rather than weights, but doesn't discuss the resulting pitfalls that arise from large differences in fat content, particularly in women, since the effect of body fat on mortality depends on where it is located.

Another problem is that many investigators in this field appear to be predisposed to believe increased weight to be harmful. They slant their abstracts and conclusions to express this, even if their data don't support it.

Consider "Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of U.S. Adults" (*New England Journal of Medicine* 348 [2003]: 1625). The portion of the abstract headed "Conclusions" reads, in its entirety, "Increased body weight was associated with increased death rates for all cancers combined and for cancers at multiple specific sites." However, as I pointed out (*New England Journal of Medicine* 349 [2003]:502) 90 percent of the men studied were in groups they labeled "grade 1 overweight" and "normal range," and their data showed fewer cancer deaths in the former group than in the latter group.

But here's a worse example: a paper titled "Excess Deaths Associated with Underweight, Overweight, and Obesity" (*Journal of the American Medical Association* 293 [2005], 1861). The "Conclusions" read: "Underweight and obesity, particularly higher levels of obesity, were associated with increased mortality relative to the normal weight category. . . ." But, if you read the "Results" carefully, you see that the authors divided the population into four BMI groups, with normal being defined as 18.5 to <25, and overweight being defined as 25 to <30. Underweight and obesity were defined as below and above these ranges, respectively. The excess deaths associated with "overweight" were a negative number compared to the deaths associated with "normal weight."

Which brings us to the question of how to define normal BMI. If you define it as the BMI with the lowest mortality rate, it is obvious that the results of these studies show that the group they label "overweight" is the group that should be considered normal. If the group they label "normal" was originally so labeled because it was then the group with the lowest mortality rate, their data show that this is no longer so. It is also noteworthy that life expectancy has been rising as the population has been becoming heavier and as, as is apparent from their results, the BMI cohort with the lowest mortality rate has become a heavier one.

Marshall E. Deutsch
Sudbury, Massachusetts

I suppose I shouldn't quibble with an almost entirely excellent article on the controversy over deaths attributable to obesity, but here I go anyway. I find it interesting that Johnson cautions us not to "abandon our attempts to maintain a healthy weight," and cites statistics showing a correlation of BMI (body mass index) with hypertension and simultaneous increases in diabetes and BMI in the United States. (One wonders whether these studies correct for the tightening of blood pressure and blood-sugar standards over the years.)

But correlation is not causation. Do any data show that weight loss without an associated healthy lifestyle (exercise and healthy eating) yields any improvement in health? If not, then there seems to be no advantage in weight loss alone, and every advantage in doing what your mother told you when you were a kid: "Eat your vegetables and go out and play with your friends." The studies cited in the article clearly show that exercise and healthy eating greatly improve health, regardless of whether there is any significant weight loss.

Even so, I like that Johnson did not refer to weight loss, but to maintaining a "healthy weight." Presumably, besides imploring the obese to lose weight, he's advising those with BMIs below 25 to gain weight immediately for their health. Perhaps we should expect an immediate drop in the sale of women's clothing below size twelve.

Bill Weitze
San Jose, California

Warning the public about dangerous products may not be junk science (after criticism forces correction of any sloppy use of correlations), but launching a campaign to run products off the market is sure as shooting junk government. Likewise, putting corporations out of business (with outsize penalties and greedy, surrogate-casino lawsuits) is junk justice. What's more, discounting all testimony by researchers who work for a corporation is junk journalism.

As for the science, even when a correlation is sound, it doesn't end the story (though preliminary warnings are in order). Real science would pursue the matter further: Why isn't the correlation 100 percent? What brings it about? Under what conditions should it deter the use of a product, and when can it be overridden? What can be done to offset it? I've known individuals who could eat three cheeseburgers at every lunch and still stay thin. People like me (whose ancestors evidently lived on the edge of starvation, so they evolved a metabolism that never wastes a calorie) may need to abstain, or at least get lots of exercise.

Where penalties and torts are concerned, producers should not be punished for continuing to push a product while its danger is still subject to reasonable doubt. If the correlation is beyond reasonable doubt, but not applicable to all uses and all users, producers should be held to advertising that rightly characterizes what is known—but not to self-abnegation. And consumers who fit the warnings but ignore them should not collect damages.

Finally, let's be realistic about the motivations we ascribe to scientists. Not everyone who works for a corporation is motivated by corporate profit alone. I myself worked for a corporation (*mea culpa*, I guess, but at least it wasn't in the food or tobacco industry) and knew many of the best researchers in all fields. When you work for a corporation, you're constrained to make something work—not just hunt for reasons to abjure production. That should enhance the prestige of an expert from industry—but instead, anyone who works for a business is brushed off as a flack, and everyone who specializes in finding fault is believed.

Dick H. Fredericksen
Tucson, Arizona

Patrick Johnson responds:

I would like to start by thanking these readers for taking the time to read and respond to my article.

Marshall Deutsch is correct about the definition of body mass index (BMI). It is, in fact, the ratio of a person's weight to the square of his or her height. I must concede that, in my desire to remain concise, I overabbreviated the description of BMI. However, in response to his complaint that I don't consider the determination of normal weight and obesity, I offer this quote from my article: "A few things become clearer after examining the data. First, it appears that our categories are mislabeled; being classified as overweight appears to give one an advantage (statistically, anyway) over those who are in the ideal weight range" (p. 28). This section also includes a footnote that shows corroborating studies for this claim.

The rest of Deutch's criticism is puzzling to me. He asserts that I should have considered the fact that many of the investigators in the field are predisposed to believing that obesity is harmful. Yet one of the main themes of my article was that a great deal of the data on the topic are biased and that many of the researchers involved have long been confirming their own preconceived notions. In his criticism, Deutsch cites several studies, one of which was cited in my article, and all of which support my conclusions as well as his.

In response to Bill Weitze's question as to whether any studies support a health benefit of weight loss by itself, there is a paper that appeared in JAMA *suggesting that BMI has a stronger association than physical activity with the development of type II diabetes [*JAMA, *292(10)]. This study is based on epidemiological data and does have some of the flaws inherent in that type of research, but the authors do at least acknowledge the limitations and avoid concluding that the sky is falling. Also, while I know that anecdotes don't necessarily constitute evidence, it is clinically evident that diabetic patients who lose weight maintain better blood-sugar control even if they are not exercising. Of course, exercise can also improve blood-sugar control independent of weight loss, so the conclusion should be that, with regard to health, a combination of both is the ideal scenario.*

The God of Eth

Stephen Law's "The God of Eth" (September/October 2005) is a clever, highly amusing piece. I suppose the intent is to shock believers into abandoning their misbegotten belief in a deity. However, it really only succeeds in knocking down a philosophical straw man. The God of Aristotle, Plato, and Anselm, an all-knowing, all-powerful, all-everything being, was nothing more than a philosophical construct, good only for philosophical mind games. This God cannot have any character, because it would detract from its theoretical perfection. Law's God of Eth is merely one more in a long line of such fictional gods.

The God that people worshipped in the Old and New Testament, or in the non-Christian worlds of Hinduism or folk religions, was nothing like this philosophical construct at all. He (or sometimes She) was a deity with passions, with real feelings, and who engaged in face-to-face (as it says in Exodus) interactions with people here on earth.

If Law wants to be taken seriously by people (like myself) who really do believe in a deity that can (and does) talk to people on earth, this is the god that he will have to engage with. Not some forlorn philosophical construct.

David Farnsworth
Tigard, Oregon

First, let me say that I enjoyed very much Stephen Law's unusual stab at the "problem of evil." I had never thought about the fact that it works just as well against an "omnimalevolent" god as it does against an omnibenevolent one.

However, there is one problem with this argument that I have never seen fully addressed. Besides being omnipotent and omnibenevolent (or omnimalevolent, in the case of Eth's god), God is also eternal and perhaps intends that we, her creations, will also be eternal.

If I were Booblefrip, I would argue that the pleasure some of us feel in this lifetime is simply an infinitely tiny respite from an eternity of torture that God has planned for us. Perhaps that respite may make the eternal torture that much more painful or perhaps she has other reasons for allowing us to feel it, but in any case, it is inconsequential when it is compared to the whole of eternity.

Randall Raymond
Evans, Georgia

For years, I have been buying the SKEPTICAL INQUIRER for its evidence-based assessment of specific, testable claims. I have noticed that in recent years, you have been running more and more philosophy pieces. Often (not always), these pieces are rather poorly done and often (again, not always) are written by proponents who argue only one side of a case, usually anti-theism.

Am I alone in regretting this trend? I can find my philosophy elsewhere, and every page devoted to this in SI means less empirical study of extraordinary claims, a much rarer commodity.

Trevor Cooper
New Malden, Surrey
The United Kingdom

To misstate an opponent's argument in a manner that tends to deflate its puissance is so common a tactic these days that it hardly bears mention. But whether such misstatement proceeds from a desire to ridicule or an honest failure to understand the other viewpoint, it should be brought to light whenever possible.

Stephen Law's "The God of Eth" is riddled with this sort of mischief from its outset. Law contends, for instance, that "God is often characterized as an infinitely loving father." Perhaps, but not by anyone who as actually *read* the Bible—particularly the Old Testament, which forms the common canon of Christianity, Judaism, and Islam. There, God is described as "slow to anger," but examples of the fury of His wrath too numerous to list here clearly indicate that He is far from "infinitely" loving. The image of God as an indulgent grandfather who pats his children on the head and hugs them no matter how unrepentant or irredeemably wicked they are is the product of collective fantasy. It is the wishful view of those who believe in God as they would have Him be, not as He necessarily is. We hear this all the time, usually in the form of "I would never believe in a God that would do X." If one is to accept the possibility of God's existence, one must necessarily accept that God is what He is, independent of our (usually) self-serving wants.

That an omniscient, omnipotent being that is transcendent of time and space might work in ways that are out of the reach of our finite minds is a notion Law dismisses out of hand, without ever really telling the reader what he finds inadequate about it. Why, exactly, is this so hard to swallow?

Sean M. Smith
Roseburg, Oregon

Stephen Law said, "Surely, even if the universe does have a designer/creator, isn't it patently obvious that this being is neither all-evil nor all-good?"

Surely, Mr. Law is correct. God is neither all-evil nor all-good. But neither is God "good" or "evil" at all. If God is what the majority

of us believers say It is—omniscient and far removed from human foibles and concepts—then God is way beyond good or evil.

The force that created everything—whether we think these things are beautiful or ugly—exists and is far more advanced and knowing that I am. Call me weird, but for me, that's quite comforting.

Emily Mills
Madison, Wisconsin

I am embarrassed by "The God of Eth" from the points of view of both philosophy and science. The arguments that Law writes about can be traced back to the "five ways" found in the *Summa Theologica* of Thomas Aquinas (1Q2a1). I went to the *Summa* and found that "good" is taken quite differently by the two authors. For Aquinas, "good" is one of the convertibles with "being," whereas for Law, it seems to be simply a benefit for one or more humans. This means that from the get-go, Law is not addressing the problem of God as put forth by the theists but has constructed a straw adversary. Whether in philosophic logic or in scientific logic, definitions should be agreed upon and used consistently.

Martin Buote
New Bedford, Massachusetts

Surely, demolishing the case for the existence of God does not require the elaborate argumentation provided by Stephen Law. For example, Intelligent Design, on its own argument, must presuppose an even more intelligent designer who designed God. And so on, in infinite regression. Nobody has ever been able to answer the old, old question, "Who made God?"

All pro-God arguments founder on this one point. To someone arguing for God, one has only to say, "But God doesn't exist," with any protestations being met by "Prove it."

George Wood
Cheltenham
The United Kingdom

Stephen Law responds:

My article was intended to give a novel perspective on the problem of evil—to show that it's not as easily dismissed (by, e.g., appeals to "free will," etc.) as many seem to think.

David Farnsworth suggests I'm attacking a straw man—most worshippers don't believe God is all-good. This is news to me. And also, the Archbishop of Canterbury, who recently publicly admitted that the Southeast Asian tsunami is deeply problematic for anyone who shares his faith. It will also come as a surprise to the countless theists down through the centuries who attempted to explain why an all-good God would behave in such cruel and despicable ways. (Even my local vicar was at it the other day.) My article was intended to expose such attempted explanations for what they are—deeply inadequate. If Farnsworth doesn't believe in an all-good God, that's fine. But is it accurate to say that what I'm attacking is something few believe in?

Sean M. Smith's response is similar: the problem of evil is not a problem if we give up the view that God is "a loving father figure." But actually, it's a problem for anyone who thinks God is "good," on any intelligible use of that word. If I've understood him correctly, Smith wants to say that God is good, but in a special, mysterious way (so that the sheer quantity of suffering we see around us doesn't then count as evidence against Him). Of course, the same move might also be made in order to defend belief in an evil God—he is evil, but in a special, mysterious way. The absurdity of this move to defend belief in an evil God is surely mirrored by Smith's attempt to defend belief in a good God. Or perhaps he simply wants to deny that our creator is, in any *intelligible sense, good? If so, he agrees with me!*

Legitimate Futures Studies

Miller and Balcetis's piece, "Palm Readers, Stargazers, and Scientists: A Critique of Futurism," horribly smears the legitimate, intersecting fields of futures studies, technology forecasting, and related, future-oriented technology analyses. It demeans "scientific futurism" by using the caricature of individual "genius" forecasts that do not reflect how scientific futurists work.

Actual science and technology (S&T) forecasting, roadmapping, and assessment are bona fide endeavors. They rarely offer the sort of absolute (point) forecasts that Miller and Balcetis lampoon. Instead, they strive to anticipate alternative futures. They do so by applying a suite of methods—with the standard advice being to use multiple methods to counter the weaknesses of data, theory, and methods (cf., Porter et al., 1991). Methods include creativity approaches (e.g., TRIZ, derived from systematic exploration of potential analogies), monitoring (with advanced text mining of S&T topical-search results [cf., Porter and Cunningham, 2005], trend analyses (e.g., fitting growth curve models to time-series data and judiciously extrapolating), expert opinion (e.g., Japan's national Delphi studies), simulation, and scenarios (to array a sampling of alternative plausible futures). A recent conference explored a range of new methods (IPTS, 2004).

Such systematic S&T forecasting and futures studies serve multiple purposes. They can be divided into extrapolatory ("Where are we heading?") projections and normative ("Where do we want to go?") planning. Many variations come into play as companies (e.g., Shell), agencies (e.g., the U.S. National Reconnaissance Office), and nations (e.g., Finland) strategize. Readers interested in sampling these fares might check out the journal, *Technological Forecasting and Social Change,* or search databases such as the Social Science Citation Index or INSPEC.

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A Good Cup of Tea

Regarding "The Elixir of Life," by William H. Baarschers, (September/October 2005), it must be noted that in spite of the scientific evidence, the fact remains that there are few situations in life that are not improved by a good cup of tea. This even includes the reading of the SKEPTICAL INQUIRER.

Robert L. Cleve
North Hills, California

Chiropractic Federation Responds

The SKEPTICAL INQUIRER and Drs. Renckens, Schoepen, and Betz should be red with embarrassment following the Special Report "Beware of Quacks at WHO" (September/October

2005).

In circumstances where the authors are mounting a broad attack on individuals, organizations, and professions on the alleged basis that they ignore evidence, show "great contempt" for professional and scientific standards, and are guilty of quackery, it is the authors themselves who display those faults.

Dr. Zhang of WHO, whose actions and views are central to the matters being criticized, is referred to twice as being male. She is actually a rather impressive *woman*. So much for the authors' research and the reliability of anything they say. As a medical specialist from China, Dr. Zhang is a colleague of the authors, one who has been badly libeled and deserves a full apology.

It is claimed that my organization, the World Federation of Chiropractic, wrote a substantial part of WHO's *Traditional Medicine Strategy 2002–2005*. Your evidence, please? It did not write a word. The WFC is said not to be known as a promoter of evidence-based medicine or health care. In fact, it specifically is, both by the chiropractic profession and the many medical and other professionals who participate in our research symposia.

How embarrassing! The message seems clear. What we should really be wary of is not quacks at WHO but observers with closed minds and entrenched biases—and editors insufficiently skeptical about what they write.

Anthony Metcalfe, D.C.
President
World Federation of Chiropractic
Toronto, Ontario
Canada

Willem Betz responds:

Anthony Metcalfe, D.C., is quite right on one point: Dr. Xiaorui Zhang is of the female gender, and we knew this. The gender confusion in our article was caused by a helpful SI editor who wanted to make a grammatical improvement and added two words—"man" and "he"—to the original text. He (or she?) should have known that the Chinese name *Xiaorui Zhang* can designate only a female. Please accept our apologies for this. Perhaps Dr. Metcalfe can agree that it is not necessary to know the gender of the author to discuss the scientific value of a paper.

It is also not necessary to have a personal relationship. It may well be that Dr. Zhang is "a rather impressive woman," but after the recent events, some have voiced doubts that an education as a "barefoot doctor in China who later went on to train at Beijing University of Traditional Medicine" is sufficient to be Team Coordinator for Traditional Medicine and the Department of Essential Drugs. The misleading and quack-praising documents she has allowed to be released in the name of the WHO seem to indicate that those doubts are not unfounded. Our article exposed that she was secretly preparing to publish another very biased and misleading report, this time on homeopathy. Secrecy can be acceptable when one wants to protect the results of his own original research before publication, but in this case, there was not one bit of research at all, only a collection of very biased, selective citations of the work of others.

The fact that she did not answer or even deign to acknowledge receipt of letters from academicians from at least four different countries also raises serious doubts about her inclination towards objective scientific reporting.

Perhaps she was badly advised, but as head of the institute, she has to assume her responsibility, whatever her gender is or how impressive she might be as a person.

The publication of the WHO report, *Traditional Medicine Strategy 2002–2005,* is also peculiar. In small print on page 2, there is a statement that "This document is not a formal publication of the World Health Organization," but the front page clearly has the WHO label, and all other pages are headed by "WHO/EDM/TRM/2002.1." Is this not a wee bit misleading? The united quacks of the world are certainly using it to claim WHO backing.

The second issue with Metcalfe's letter is his denial that he or his WFC ever wrote a word for that strategy report and he challenges us to produce evidence. That evidence can be found on, for example, pages 15 and 40 of the report, and also on the Web site of his own WFC. Page 15 shows a world map indicating countries that have legalized chiropractic "based on a report by the WFC." On that map, my own country, Belgium, is indicated as having legalized chiropractic. This is definitely not correct: in Belgium, chiropractors are not recognized as medical professionals—it is considered an illegal practice of medicine. On page 40, we read that the WFC "will assist the WHO in reviewing and documenting the legal status of TM." Are we to believe that all those citations were inserted without the knowledge or collaboration of the WFC? Several paragraphs in the same "report" extol the virtues of chiropractic, but nowhere is there any mention of the increasing concern about many cases of cerebral damage and deaths after spinal manipulation by chiropractors.

Does Metcalfe know that the stationery paper of his WFC mentions that it is "A nongovernmental organization in official relations with the WHO"? Does he know that the WFC is trying to monopolize the trainings in manual medicine and to push out M.D.s and osteopaths? (See www.findarticles.com/p/articles/mi_qa3987/is_200408/ai_n9434527 from ["WHO Guidelines on Chiropractic Education and Practice," by Paul F. Carey, from *Dynamic Chiropractic*, August 16, 2004.])

Metcalfe's third objection is that we mention the WFC as "not to be known as promoters of evidence-based medicine." Again, we must advise him to read the publications from his own organization at www.wfc.org.

Perhaps he can explain why the WFC Policy Statement is based on the nonexistent chiropractic subluxation. Perhaps he can also explain the following statement by the chairman of the WFC, Dr. Vaughan (www.chiroweb.com/archives/18/16/18.html):

> The WFC, however, must be a forum and a home that welcomes all chiropractors if it is to serve its true function and be successful. This includes associations that are very subluxation-based, such as the ICA and the New Zealand Chiropractors' Association, and those that are much more evidenced-based, such as the Danish and Norwegian.

Perhaps he can also clarify the meaning of the letter by David Chapman-Smith, WFC Secretary General, who answered an accusation from a rival chiropractic organization that accused the WFC of imposing standards of care, by clearly stating that "The WFC has no standards of care" (www.worldchiropracticalliance.org/tcj/2004/may/wfc.htm).

Perhaps Anthony Metcalfe, D.C., can explain us how he reconciles having "no standards of care" with the principles of evidence-based medicine.

Italian Relics

I enjoyed Joe Nickel's exposition on Italian relics (September/October 2005).

I visit Italy frequently myself and when there, often "marvel" over the relics on display in practically every Italian church. What is most marvelous is that anyone could actually believe most of the tales told of what (or whom) the relics are, and how they came into the possession of the respective churches.

There is a most amazing "relic," of sorts, on display in, of all places, a science museum

in Florence. This "relic" is distinguished from practically any other relic in that it is almost certainly genuine: it is the right middle finger of Galileo, removed from his body at the time it was moved into its present tomb in the Basilica of Santa Croce in Florence. (Dava Sobel has a lovely description of this tomb in her book *Galileo's Daughter*.) What is most amazing is that this finger is done up, lovingly ornamented and displayed, in a way that is an unmistakable parody on Catholic relics; obviously someone's joke on the church. One of my scientific colleagues, upon viewing it, noted dryly that it "was not noticeably pointed toward Rome." I recommend this display to anyone on a future trip to the area. The museum contains a full room of Galileo memorabilia, well worth the visit. A very nice virtual tour can be had at www.imss.fi.it/index.html.

Alan W. Harris
Senior Research Scientist
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La Canada, California

Joe Nickell might be interested to know that even in the Moslem world, relics are valued. On a trip to Turkey a few years ago, we were taken to the alleged last home of the Virgin Mary near the ruins of Ephisis. It was a nice stone hut with a wonderful view of the sea. Of course, it had the usual assortment of crutches, canes, etc. from the cured. Interestingly, it was in far better condition than Ephisis (the best ruin I have ever seen), although it was several hundred years older. In the Topkapi Museum in Istanbul, we were shown the forearm of St. John the Baptist. Later, we saw a tooth from Mohammed and several other relics, including his shoe print.

Phil Trice
Oak Park, Illinois

Change the Metaphor

In "The Power and Perils of Metaphors in Science" (September/October 2005), Massimo Pigliucci describes well what happens when a scientific metaphor takes on a life of its own. But he hasn't gone far enough. Some everyday metaphors present very serious problems for the relation between science and the larger culture.

Psycholinguist-philosophers George Lakhoff and Mark Johnson have demonstrated that since we all have fundamentally "embodied minds," ordinary experiential metaphors are everywhere woven into the fabric of our collective cognitive unconscious. These metaphors are absolutely integral to language and thought. They are the lenses through which we see ourselves and the world around us.

In particular, the extremely powerful, pervasive, and deeply lodged machine metaphor (in which science itself has been complicit), along with its underlying and more general fabrication metaphor, are undoubtedly the basis of the notion of "Intelligent Design." Why do people tend to see Intelligent Design in the Universe? Precisely because we are, and have always been, a technological species. We purposely design and create. And we have the metaphors to match. To our metaphorical unconscious minds, as expressed and reinforced through language and thought, a universal Intelligent Design makes perfect sense.

However, as Pigliucci suggests, change the metaphor—change the thinking. It's high time we show Intelligent Design for what it is: a mere figment of the metaphorical imagination.

Frederick Cichocki
Boca Raton, Florida

Homeopathy and Hormesis

Homeopathy is back, stronger than ever and more global. (See the review of *Copeland's Cure*, SI July/August 2005.) Now termed *hormesis*, it extends homeopathy to include toxic chemicals and radiation, among other hazardous materials. Hormesis (defined operationally as low-dose stimulation, high-dose inhibition) is often used to promote the notion that while high-level exposures to toxic chemicals are detrimental to human health, low-level exposures are beneficial, as in homeopathy. Some proponents claim hormesis is an adaptive, generalizable phenomenon and argue that the default assumption for risk assessments should be that exposure to toxic chemicals induces stimulatory (i.e., "beneficial") effects at low exposures. And, thus, we need not worry.

The theory goes: even if high doses of or exposures to an agent or chemical causes cancers or genetic mutations or other toxic effects, smaller doses below those that induce those adverse responses are most often beneficial. Radiation zealots began this hormetic concept, but it has been expanded to include other toxic materials. This was built on the idea proposed by Paracelsus (a seventeenth-century German-Swiss physician) that "the dose makes the poison," which the chemical industry extols in its vested quest to exonerate its prized chemicals from accusations of negative effects on human health. (Witness the recent attempt to cover up the cardiovascular dangers of Vioxx.) In science and medicine and other endeavors, exceptions make or break the rule. In both homeopathy and hormesis, there are exceptions too numerous to count.

The concept of hormesis or homeopathy is based largely on empirical observations and does not adequately consider the underlying mechanism(s) of action. Stimulatory responses are not always beneficial, and some may be harmful. Health decisions based on purported beneficial effects of hormesis must address differences between individuals in exposure and susceptibility, including genetic, life-stage, and health-status factors, among others. Further, health decisions based on so-called beneficial effects must address the fact that other environmental and workplace exposures may alter the low-dose response of a single agent.

For more information, see "Fundamental Flaws of Hormesis for Public Health Decisions," by Kristina A. Thayer, Ronald Melnick, Kathy Burns, Devra Davis, and James Huff, in *Environmental Health Perspectives* 113 (2005).

James Huff
The National Institute of

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